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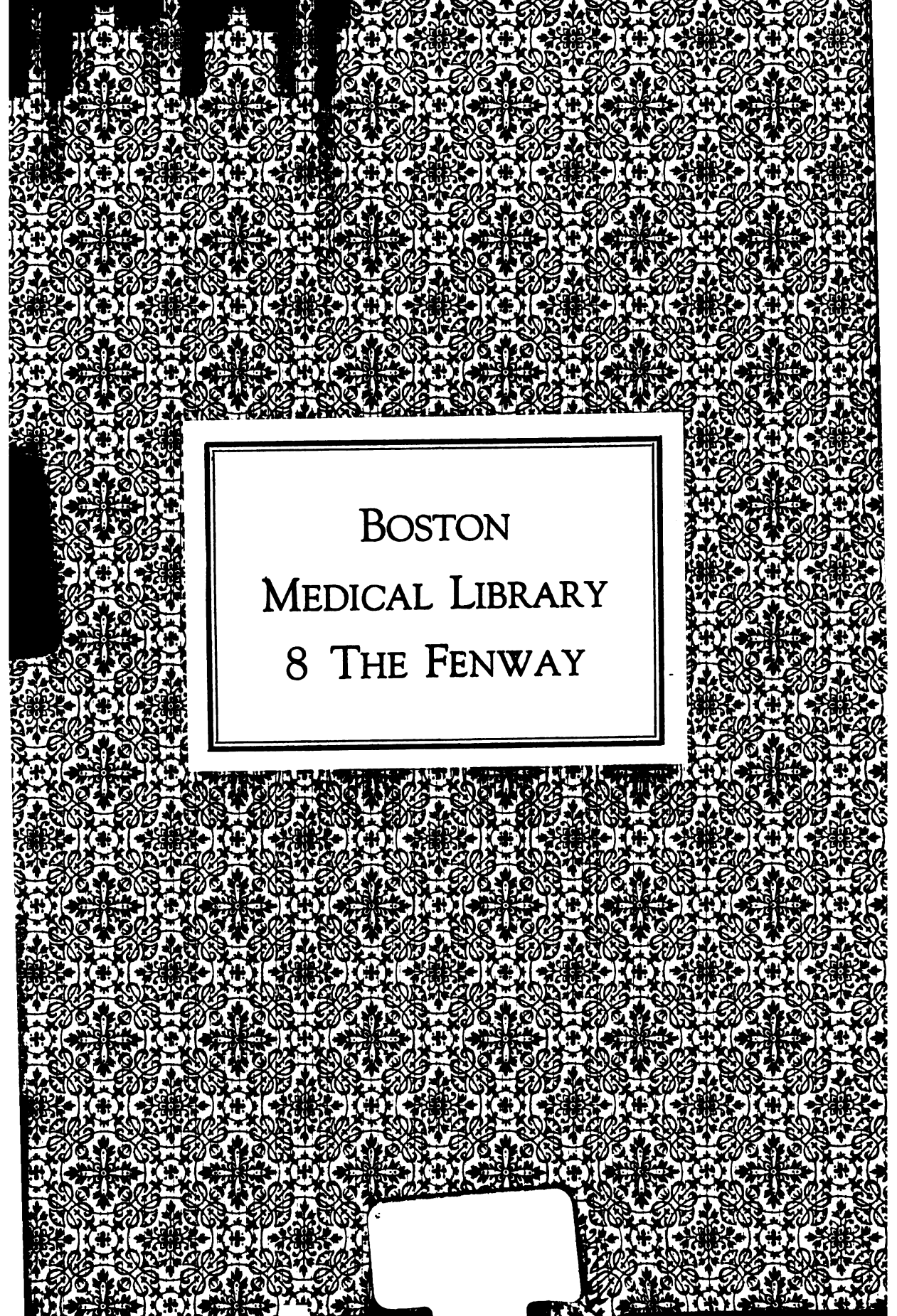
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THE  
THERAPEUTIC GAZETTE

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OF

General, Special, and Physiological Therapeutics.

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WHOLE SERIES, VOL. XXI. THIRD SERIES, VOL. XIII.

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WILLIAM M. WARREN,

DETROIT, MICHIGAN.

1897.

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## Original Communications.

### THE ANTITOXIN TREATMENT OF DIPHTHERIA.\*

B. H. DETWILER, M.D.,  
Williamsport, Pa.

The simultaneous discovery of the bacillus of diphtheria by the German investigators Klebs and Loeffler demonstrated such progress in pathological research that these gentlemen have been honored by the world naming that organism the Klebs-Loeffler bacillus. The antitoxin of diphtheria is the natural

sequence, the appearance of which has been awaited by an expectant world. The helplessness of the profession in this terrible disease, that has so devastated nations, is best expressed in the multitude of specifics employed, and in the therapeutic negation known as the expectant treatment. The advent of the hypodermic injection of the antitoxin of diphtheria was coldly received by the profession, who, smarting from the disappointment in the effect of tuberculin upon the bacillus of tuberculosis when they expected so much from Koch's discovery, tested it slowly; and with this hesitancy followed the loss of thousands of lives; but when by its own merit it demonstrated its value, it was gladly hailed

\* Read before the Lycoming Medical Society, December 4, 1896.

by a suffering world. The former empirical plan of calling all membranous exudates of the tonsils and fauces, diphtheria, led to unreliable data; but now, when exudates are tested by the microscope, and a reliable antitoxin serum is used at a sufficiently early period of diphtheritic invasion, the result is uniformly a speedy recovery, with few sequelæ. The tendency to recovery is shown in from twelve to twenty-four hours by reduction of temperature, gradual proliferation of exudates, and a return of the desire for food. The more protracted the invasion, the less reliable is the antitoxin treatment and the greater the percentage of mortality. Professor Paltauf, of Austria, publishes in the *Lancet* statistics of 1103 cases of diphtheria in which antitoxin was employed, with the result of 970 recoveries and 133 deaths, equivalent to a mortality of 12.5 per cent. He lays much stress upon the early use of the serum, for in the cases where the injections were made on the second day of the disease the mortality amounted to but 6.7 per cent., whereas in the cases where the antitoxin treatment was begun on the third day the mortality amounted to 19 per cent.; if on the fourth day, to 23 per cent.; if on the fifth day, to 31 per cent.; and if on and after the sixth day, to 33.3 per cent. Professor Paltauf makes mention of the epidemic of diphtheria in Ischl, where in December, 1895, all the children died who had not received the antitoxin treatment, whereas in January, 1896, in the case of sixteen children attacked with the disease and treated with antitoxin, the result was in every way successful.

The first case of diphtheria in this city to be treated by antitoxin (March 10, 1895) was under the care of Dr. Charles Youngman, and proved fatal: the injections were not made sufficiently early in the course of the disease. Dr. Mohn, of Jersey Shore Junction, treated about that time four cases, with recovery. The City Hospital has purchased at wholesale diphtheria antitoxin for the use of the profession, enabling them to secure it promptly and at wholesale rates, and thus saving many lives. The first case of diphtheria cured by antitoxin in this city was in the contagious ward of the hospital in 1895, depending exclusively upon the antitoxin treatment. The result was so satisfactory that the serum was accepted as the coming remedy. In subsequent cases mixed treatment was used with it, with such uniform success that any one now losing a diphtheria patient without using antitoxin serum is held culpable.

Dr. G. Franklin Bell states that he had eighteen cases, seven males and eleven females, aged from one and a half years to fourteen years, all but one in good condition; period of invasion from two to five days; diagnosis not confirmed by cultures. Five of these had two injections of antitoxin, thirteen had one each. The membrane was upon the tonsils in thirteen, upon tonsils and nose in five, upon tonsils and pharynx in eight, and in the larynx in none. Three had nephritis. There was no paralysis. All recovered. In six cases antitoxin was exclusively relied upon, and in twelve a mixed treatment of bichloride and calomel internally was used, with local spray 1:2000 bichloride every two hours; Behring's preparation was used in sixteen cases, and Mulford's in two.

Dr. Geo. D. Nutt says: "I have seen six cases of croup. All seemed to be membranous. I gave antitoxin to all; intubated three of them. All got well but one, a small child, who died of pneumonia." He has just used serum on a case of diphtheria forty-eight hours old; membrane on pharynx and tonsils; temperature 103°. Twelve hours after injection the temperature was 99.5°, membrane off one tonsil and throat; in three days all the membrane was gone.

Dr. Gilmore, of Westport, writes November 10: "I injected antitoxin into a child of seven with laryngeal diphtheria following invasion of tonsils and pharynx. The stenosis was not great, but marked. She has greatly improved; temperature and pulse have become normal, but aphonia is still present. Should the case recover, it will be my first recovery after two deaths in former years." This child recovered.

Dr. Van Horn, of Farragut, reports four cases: "Treated three with antitoxin, recovered; one not treated died; tested with cultures."

Dr. Milnor reports "four cases treated in the contagious ward of the hospital in October, 1896. Average age, eight and one-half years. Treated three by Mulford's serum of antitoxin of diphtheria, one by Parke, Davis & Co.'s. Three were treated at an early stage, one late. Average time in the hospital, ten days. No complication. Four recoveries. Temperature subsided in from twenty-four to forty-eight hours. Diagnosis confirmed by culture."

Dr. H. G. McCormick states: "I have treated with antitoxin twenty-four cases, ranging in age from two to thirty-two years. In three of them I gave a second dose. The



posterior nares were involved in three cases; one had croup. All recovered. Paralysis of the muscles of deglutition followed in two cases. In no instance was the injection given longer than four days. The antitoxin was not wholly depended on, other remedies being used. In all of the cases, marked control of the disease was noticed within eighteen hours. There were no abscesses following the injections in any instance. Most of the cases were treated in the hospital, and cultures were made in all, with the result of finding the Klebs-Loeffler bacillus."

Dr. A. P. Hull states, November 9: "I have used antitoxin of diphtheria in nine cases of diphtheria and three cases of croup. I saw the first case on the fourth day, an exceedingly bad one, gangrenous in character, with nasal complications; the dead and blackened uvula dropped off with the membranous exudate. I used injections of Behring's No. 2 antitoxin twice in twenty-four hours. The child recovered, with a slow convalescence.—I saw the second case on the third day; the membrane had extended into the nose. I used antitoxin; patient began to improve on the fifth day, and made a rapid recovery.—The third case was seen on the fifth day; membrane extended into the nose. Next day the glands were very much swollen. No improvement after injection. Death on the eighth day.—The fourth case I saw on the fourth day; membrane covered the tonsils, palate, and throat. After injection of antitoxin, patient began to improve, and on the sixth day made a rapid recovery.—The fifth case was seen on the second day; membrane was confined to the tonsils, and cleared off about the fifth day, followed in a week by paralysis of the throat, which lasted a month.—The sixth case I saw on the third day; membrane covered tonsils, throat, and palate. Recovery.—The seventh and eighth cases were injected on the third day; membrane was confined entirely to the tonsils. Both recovered, though one had a protracted paralysis.—The first case of croup was injected on the third day, and intubated at the same time. After remaining in the throat forty-eight hours, the tube was removed, with membrane attached; then replaced for five days. Patient recovered, with aphonia lasting six weeks. The second case of croup was in a diphtheritic family; injection was made within thirty-six hours, and complete recovery ensued in four days. The third case was similar to the second, but the injection was given twelve hours later; patient recovered.

I have used Mulford's, Behring's, and Parke, Davis & Co.'s serums, and report my histories from memory."

Dr. Charles Youngman reports five cases, with two deaths. The first patient, aged fifty-five, contracted the infection from clothes in a pernicious case. Gangrene and sepsis were present. Antitoxin was used twice, on the fifth day after infection. Death occurred on the tenth day, from exhaustion. The second case, a boy, aged ten, who received the antitoxin twenty-four hours after his illness began, died twelve hours later. In the third case, a boy of eight years, the antitoxin was injected thirty-six hours after inception of the disease; result, membrane dissolved on third day, and patient recovered. The fourth case, a girl aged six, was treated with the antitoxin twenty-four hours after infection, and was well by the sixth day. The fifth case, aged twelve, was injected forty-eight hours after diagnosis; cured on seventh day.

Dr. Robinson, of Morris, Tioga County, says he has had in two years 307 cases of diphtheria, using mild chloride of mercury and peroxide of hydrogen in the atomizer every two hours. For the malignant cases and those with croup he had no reliable remedy until he used the antitoxin of diphtheria. "My first two cases," he writes, "on whom the antitoxin was tested, were pronounced hopeless by other physicians. They were sixteen and eleven years of age respectively; temperature ranging from 104° to 105°; exudation nearly filling the throat. As I had only one bottle of antitoxin, I used it on the worst case, with the result that the face became flushed, in six hours large pieces of membrane were dislodged, and in twelve hours the temperature had fallen to 101°. Convalescence in two days was accompanied by aphonia, loss of hearing, and ocular paralysis. I was not able to secure any more antitoxin, and the second case died in twenty-four hours; I believe antitoxin would have saved it. Since then I have depended entirely on antitoxin in all serious cases, forty-seven in all. Two of these have been pronounced incurable by other physicians. I believe that if used in time antitoxin will cure every case of diphtheria."

Dr. Gardner, of Scranton, writes: "I have not had a large experience with diphtheria antitoxin, nor are my statistics very convincing on paper, but the practical application has given me great confidence in the remedy. I had lost all confidence in the older remedies, and, while cases recovered,

I do not believe the remedies applied had much if anything to do with the recovery. I now go to a case of diphtheria with great confidence. I report as follows: Pharyngeal diphtheria, six cases, one death; laryngeal diphtheria, seven cases, three deaths. The laryngeal cases were seen in consultation when the stenosis was severe. They were intubated, and antitoxin used as soon as possible."

Dr. John A. Klump writes: "With reference to my limited experience in the use of diphtheria antitoxin, I can report results only in about ten cases of my own. In every case where the serum was injected early, there seemed to be a favorable effect produced. The membrane seemed to melt away rapidly in the course of from thirty-six to forty-eight hours. In only one case could one claim almost positive evidence of the favorable influence of the serum; that was in a girl aged eight years, who had a mild form of faucial diphtheria which, under the bichloride treatment, disappeared in three days; on the fifth day diphtheritic croup developed, and breathing became so difficult that intubation offered to my mind the only hope of saving the patient. The parents absolutely refused to allow the employment of a tube. As a faint hope I injected a dose of the antitoxin, and left the child, as I supposed, to die, for she was cyanosed, pulse 160, and throwing herself about on the bed, struggling for air. The following morning, twelve hours after injection, the child lay unconscious, quiet, and in a cold sweat, the breathing continuing about the same as on the previous evening. On the second day, thirty-six hours after injection, she began to breathe better, and from that time on recovered rapidly, so that in a week she was quite well. I always use the serum in connection with intubation, and it seems to shorten the time required for wearing the tube. There have been cases among my own patients and those of others that I have seen where the effects of antitoxin were not apparent."

Dr. Flanagan, of Ralston, reports twenty-nine cases treated with bichloride and peroxide of hydrogen, with fourteen deaths, and fourteen cases treated with anti-diphtheritic serum, who recovered. He quotes several cases in full, demonstrating that the epidemic was of such a malignant character that a large percentage of deaths would have resulted under the old treatment. He says: "I will give my experience with twenty-nine

cases treated with bichloride and peroxide of hydrogen before I used the antitoxin. Several years ago I was in the midst of an epidemic of diphtheria. Mr. P.'s family of six children, ranging from two to seventeen years, were attacked. After the first night we buried one every night for five consecutive nights, with the best of consultants; only one recovered of that whole family. The mother gave birth to a child during this sickness, and the infant had umbilical invasion and barely recovered. There were two cases in Mr. H.'s family; one died, as well as a babe one week old; the exudate extended into the larynx, producing croup. Mr. E.'s family—self, wife and nine children—all recovered, except three who died of croup. In September, 1896, I had nineteen cases of diphtheria. Five were treated without antitoxin; four of these were mild, but Pearl, aged eleven, weighing 104 pounds, who had never been sick, had headache, vomiting, high temperature, after twenty-four hours exudation on tonsils and fauces, which increased daily, and on the fourth day the nares were involved, cervical glands enlarged, and cellular tissues implicated; fifth day, croupy; sixth day, general toxemia, pallor, feeble heart-action; on the eighth day she died. A brother, aged four, had the same symptoms, with characteristic diphtheritic membrane upon both tonsils,—on the second day, the nose and cervical glands were involved, with purulent discharge, nasal obstruction, laryngeal stenosis, pulse 140, respiration 40; on the fourth day I called Dr. Nutt in consultation, who injected into the dying child Behring's antitoxin No. 2 at 4 P.M., remarking: 'If that child gets well I will have lots of faith in antitoxin of diphtheria.' At 10 P.M. respiration was improved, pulse 120; and in three days the throat was clear of exudates and the child saved, though he was not fully convalescent for a month. A fortnight later the boy's aunt, who had nursed all the children, had diphtheria, with the usual symptoms, exudate extending rapidly. After forty-eight hours, the pulse being 122 and the heart-action weak, I injected Behring's No. 2 antitoxin; in addition gave one-thirtieth of a grain of strychnine three times a day. Patient stated: 'From the time antitoxin was used my throat grew no worse, but the exudate did not come off for ninety hours. There was a grayish exudate like an oyster with holes in my throat.' She convalesced slowly, had aphonia for two months, with paralysis of muscles of deglutition, and general exhaustion. I believe she would have

been benefited by a second injection. Another child in this family, a boy, was attacked with the usual symptoms of diphtheria; in six hours I gave him an injection of Behring's antitoxin No. 2, and in twenty-four hours he was convalescing. The balance of the cases convalesced immediately after the use of the antitoxin. When this is given within six to twelve hours after invasion, I have no trouble. Summing up: of twenty-nine cases treated without antitoxin, I lost fourteen, or forty-eight per cent.; and in fourteen cases in which antitoxin was used, there were no deaths, and no one now fears diphtheria among us."

My own experience is gratifying. I have treated twenty-three cases with antitoxin, and lost only one, a child of six months; this patient improved for four hours, and then became cyanosed, indicating heart-failure, probably due to the septic impression upon the cardiac centres. This was not due to the age of the child, as another child of the same age, that had not only exudation upon the tonsils, but a patch upon the neck three by five inches (tested by cultures), recovered in four days. Where the antitoxin is used within thirty-six hours of diphtheritic invasion, there is a gradual fading away of the exudate, with immediate return of appetite and strength.

I formerly used Behring's preparation, then Mulford's, but at present prefer that made by Parke, Davis & Co., as it is held in bulb tubes that are smaller in bulk, more convenient for use, apparently more aseptic than the ordinary packages with corks, and the serum itself gives less pain in injecting.

In recent cases I have found 1000 units ample for the average case. Some require a second injection; I am governed in this by the elevation or depression of temperature. While confident of the ability of antitoxin to destroy the bacilli in the circulation, I prefer to use 1:2000 bichloride locally, or by spray, with calomel, until it acts freely on the secretions, in order to prevent reinfection. The State Board of Health provides, free of expense, bacteriological examination of exudates of diphtheria, but, unfortunately, there will be so much valuable time lost that the delay may prove fatal in many cases. I am so fully impressed with the value of antitoxin of diphtheria from my own experience, independently of that of others here presented, that I believe in case of failure there is either an insufficient amount injected, or the preparation is not reliable. In all cases

which present the ordinary signs of diphtheria, I use the antitoxin, and then prepare my culture for confirmation of diagnosis.

In conclusion permit me to present the experience of physicians in this vicinity, which, in a word, is this: One hundred and eighty cases treated by antitoxin, with six deaths—an experience eloquent in unparalleled results.

#### *THE DURATION OF ACUTE GONORRHEA UNDER TREATMENT.\**

BY H. M. CHRISTIAN, M.D.,

Chief of the Genito-Urinary Dispensary, University of Pennsylvania; Adjunct Professor of Genito-Urinary Diseases, Philadelphia Polyclinic.

The subject of this paper was suggested to my mind by a discussion recently held with several medical friends, all of whom are engaged in general practice, regarding the length of time required to cure acute, uncomplicated gonorrhea. It was a matter of great surprise to me to learn that the unanimous opinion of all present, myself excepted, was that gonorrhea, under ordinary circumstances, should generally be cured in about three weeks. This statement, so utterly at variance with my own experience, induced me to make some further inquiries among physicians engaged in general practice, regarding this matter of the duration of acute urethritis, which investigations have led to the conclusion that about nine out of ten of all physicians, other than special genito-urinary surgeons, claim to cure the disease in from three to four weeks.

Now, in view of the fact that surgeons engaged exclusively in genito-urinary work, and therefore having the most extended clinical experience in the treatment of acute gonorrhea, have never claimed such uniformly brilliant results, it would seem very evident that many if not all of these rapid cures must be set down as of rather doubtful character, to say the least. The writer would not for one moment be understood as questioning the honesty and good faith of those claiming to cure gonorrhea in three weeks. There can be no doubt that these gentlemen are perfectly sincere in their belief that their cases are really cured.

It is hardly necessary for me to call your attention to the innumerable drugs and plans of treatment, highly extolled in eulogistic articles, in our weekly medical journals, all claiming to cure gonorrhea in from two to

\* Read before the American Genito-Urinary Association, at Atlantic City, June 3, 1896.

three weeks. Methods claiming to cure in from six to eight weeks are not in vogue, and are therefore not published.

The philosophy of most of these phenomenally quick cures is based, as a rule, upon the early employment of same astringent injection, causing, as pointed out by Taylor, a rapid and early onset of the mucous terminal period of the disease, the chief characteristic of which is a thin watery discharge which might readily pass unnoticed by a careless or unobservant patient.

Now, as a matter of fact, the great majority of these cases are not cured at all, although the attending physician, enthusiastic to the highest degree over the presumed success of his "sure and quick" remedy, may be perfectly honest in assuming such to be the case.

It seems to me that the great difficulty in this whole matter, and the cause of much misunderstanding, lies in the fact that the average general practitioner of medicine is entirely unacquainted with the means of determining when a case of gonorrhea is in reality cured. Absence of discharge at the meatus too often means, to him, cure of the disease. No examination of the urine for clap-shreds is made; in fact, very little seems to be generally known as to the importance of such examination.

If what our gynecological brethren claim in regard to the longevity and depredations of the gonococcus be true, it would seem to be a matter of the utmost importance that we, as genito-urinary surgeons, should do all in our power to correct this widespread notion that gonorrhea is a simple disease, easily cured in from two to three weeks, provided the special formula of Dr. "A" or Dr. "B" be employed early in the case. For my part I believe, with Taylor, that gonorrhea may be, and very often is, one of the most formidable diseases that can attack man.

What, then, is the duration of acute uncomplicated gonorrhea? Finger states that cases of acute urethritis with no unusual symptoms last from five to six weeks. He allows two weeks for the increasing stage, one week for the stationary, and two to three weeks for the mucous terminal period. He further states that cases with a short incubation and rapid onset do not last as long, all things being equal, as those with a long period of incubation. In the opinion of R. W. Taylor, a man should consider himself very lucky to be cured of gonorrhea in from six to eight weeks. Keyes places the average dura-

tion at from four to six weeks. Brewer\* makes a significant statement regarding this matter. Referring to an article previously written by himself upon the rapid cures produced in a series of cases by the use of bichloride of mercury, he here states as follows:

"Experience in the treatment of urethral disease has taught me that the simple cessation of discharge by no means indicates a cure of the disease; and I am prepared to say without the slightest hesitation that it is my belief that, had a careful and thorough examination been made in each instance at the time when I reported the cessation of all discharge, not one case of my three series of cases would have failed to show unmistakable evidences of an uncured urethritis."

Dr. J. William White gives the duration of acute urethritis as from four to six weeks. Dr. Martin thinks a case fortunate that is cured in eight weeks.

In presenting to your consideration the following statistics taken from the case-book of the Genito-Urinary Dispensary of the University of Pennsylvania, as bearing upon the matter, I thoroughly appreciate how entirely unreliable and unsatisfactory statistics taken from dispensary records are apt to be. The tendency of our hospital patients to wander around from one institution to another is well known, and allowance must always be made for this habit in forming any conclusions from a study of hospital records.

In conducting the investigations as to the duration of acute uncomplicated gonorrhea, all cases were divided into two classes: first, those suffering from their first attack; and second, those who have had one or more previous attacks.

In the first class, the following points in the histories were noted: the time at which they voluntarily stopped treatment, and the condition of discharge at last visit. In this class I have carefully compiled notes of 117 cases. Of these, 10 paid only one visit to dispensary, 12 stopped treatment at the end of one week, 16 at the end of two weeks, 21 at the end of four weeks, 11 at the end of six weeks, 2 at the end of seven weeks, 29 at the end of eight weeks, 16 at the end of ten weeks. The note made at last visit in regard to discharge is as follows: Thin mucous discharge in 28 cases; morning drop in 52; cured, 17; condition unknown, 10.

The discharge in all of these cases con-

\* Morrow's System of Genito-urinary Surgery.



tained gonococci; total urethritis developed in 95 cases. All the patients, as far as could be determined from their own statements and from their general condition, took good care of themselves and carried out the prescribed treatment to the best of their ability.

No complications were noted.

It is, of course, impossible to draw any exact inference as to the duration of gonorrhea from figures such as these. Approximate results only can be deduced, but even these have a very decided value. For example, it is of course impossible to say what was the result in the ten cases that made only one visit to the dispensary. The probabilities are that in a certain proportion of these cases the discharge was so much moderated by the first treatment advised as to cause no further inconvenience to the not over-particular patient.

The most important point to which I desire to call attention is that the discharge persisted four weeks and over in seventy-nine, or two-thirds of all the cases. Of these seventy-nine cases, forty-seven were under treatment from seven to ten weeks.

In the second series of cases, where there was a history of one or more previous attacks of gonorrhea, in addition to the points noted in the preceding series, inquiry was made as to the duration of the former attack according to the patient's own statement.

In this class notes have been made from the records of seventy cases. The length of previous attack is stated by the patients to have been as follows: in 8 cases, one week; in 8 cases, two weeks; in 14 cases, four weeks; in 20 cases, eight weeks; in 20 cases, eight to ten weeks.

The length of time they remained under treatment at the dispensary for present attack is noted as follows: 4 cases made one visit only, 8 cases discontinued treatment in one week, 12 cases discontinued in two weeks, 4 in three weeks, 10 in four weeks, 17 in eight weeks, 15 in ten weeks.

The above series of cases is doubly interesting as compared with the first, by reason of the fact that, in addition to an approximate idea of the duration of the attack for which they were treated at the dispensary, we have the patients' statements as to the duration of their former attack, which is noted as having lasted from eight to ten weeks in forty cases. From four to ten weeks is the time noted in forty-two cases as the duration of treatment at the dispensary.

Taken together, these two series include

the records of 187 cases of acute gonorrhea. Of these, 17 remained under treatment at the dispensary until they were pronounced cured. Of the remaining 170 cases, 121 were under treatment from four to ten weeks.

The most valuable and instructive of all the records are those referring to the cases remaining under treatment persistently until all clap-shreds had disappeared from the urine and they had been pronounced cured. That these represent a very small proportion of the total number reported is very true; and this fact is undoubtedly due to the well known tendency of all patients to take upon themselves the responsibility of determining when they are cured. This series of cases, seventeen in all, includes medical and dental students and married men, all anxious to be permanently cured, and therefore willing to continue treatment until pronounced cured. The date of cure in all these cases is put at the time at which the urine was first clear and free from clap-shreds containing pus. The length of time required to cure the disease was as follows: four weeks in 3 cases; six weeks in 3 cases; seven weeks in 2 cases; eight weeks in 4 cases; ten weeks in 5 cases.

I have every reason to believe that, as all these patients were particularly desirous of getting well, no indiscretions were indulged in by them that would in any way help to prolong their attack. Gonococci were present in the discharge in every case. All but three had involvement of the entire urethra. Where the anterior urethra alone was involved, the cases were cured in about four weeks. It will be noted that the duration of the disease was over six weeks in ten of the cases.

Although the treatment of acute urethritis does not lie within the scope of this article, nevertheless it might perhaps be of some interest to briefly mention the line of treatment pursued in all of these patients.

Four different methods were employed: internal medication alone; internal treatment combined with use of hand-injections; irrigation of urethra alone; and irrigation of urethra combined with internal treatment.

From a careful study of the results obtained by these various methods of treatment, one fact is very evident, namely, that those patients did best and were most quickly cured upon whom daily irrigation of the urethra was practiced, together with the internal administration of oil of sandalwood and balsam of copaiba. This line of treatment was pursued for two weeks, and followed by the

use of an astringent hand-injection of either sulphate of zinc and acetate of lead, each three grains to the ounce of water, or sulphate of copper or chloride of zinc, one-half grain to the ounce. The remedy used in most of the irrigations was permanganate of potash, beginning with a solution of the strength of 1 to 4000, increasing every other day in strength up to 1 to 500. It was found that irrigation alone could not be depended upon to absolutely cure the disease, but that it did produce a marked lessening of the profuse discharge of the acute and stationary periods, and bring the case in a short time into the mucous or declining stage, where the use of an astringent hand-injection was all that was requisite to complete the cure.

In all cases where the discharge persisted over ten weeks the condition was regarded as chronic, and the urethra was explored for the presence of soft or granular strictures. Examination of the rectum was also made, to discover if possible, whether there was any affection of the prostate gland or seminal vesicles. When these were found to be affected, massage, stripping the vesicles, and hot rectal douches were employed, no urethral treatment whatever being applied in such cases.

The following conclusions are presented, as a result of the study of statistics, just given:

First: That gonorrhea is a much more prolonged and serious affection than it is usually considered to be by general practitioners of medicine and by the laity.

Second: That in two-thirds of all cases uncomplicated the period of time necessary to obtain a complete cure is from six to ten weeks.

Third: In that small proportion of cases where the entire urethra does not become involved, the disease being confined entirely to the anterior urethra, we can, as a rule, expect complete recovery in about four weeks.

Fourth: The necessity of impressing upon the profession in general the importance of making examinations of the urine before deciding that an attack of gonorrhea is positively cured.

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#### *CLINICAL NOTES ON THE ANALGESIC EFFECT OF LACTOPHENIN.*

BY CHAS. S. POTTS, M.D.,

Instructor in Nervous Diseases at the University of Pennsylvania; Assistant Neurologist to the University Hospital.

Lactophenin, the most recently introduced of the coal-tar products having antipyretic and analgesic properties, while in use in Ger-

many since 1894 in the literature of which place many favorable reports of its action are to be found, has apparently not become well known to the profession of this country.

Chemically it is a phenetidine derivative, containing lactic acid in place of the acetic acid constituent of phenacetin. It is but slightly soluble in water, and is practically tasteless.

The writer's experience has been limited to its action as an analgesic. The number of cases reported is not large, but still it is sufficient in number and variety to show that lactophenin is a valuable agent for the relief of pain.

CASE I was a man sixty-five years of age, who for some time had been a sufferer from neuralgia involving the trigeminal nerve. By the use of lactophenin in five-grain doses four times daily, the pain entirely disappeared in a couple of days.

CASE II, a young man aged twenty-two, had had constant pain over the left eye, with violent exacerbations in the afternoon, for two years past. He said that nothing he had tried had any effect. Lactophenin in seven-grain doses every four hours relieved the pain, which, however, returned when the administration of the drug was stopped. The patient was permanently cured with large doses of quinine.

CASE III.—Patrick S., aged twenty-seven, had been suffering for three days before coming to the clinic with a violent neuralgia affecting the branches of the trigeminal on the right side. He had a number of bad teeth. Three doses of eight grains each, of lactophenin, taken every three hours, completely relieved the pain.

CASE IV.—Eight grains every three hours were given to a woman suffering from neuralgia of the trigeminal nerve. The next day she reported that the pain had ceased.

CASE V.—A patient with neuralgia of the supra-orbital branch of the ophthalmic nerve was given eight grains every three hours, for two days, without any beneficial results.

CASE VI.—John D., aged thirty-five, for a year past had been troubled with a severe sciatica. Ten grains every four hours relieved the pain for a while, but it finally returned. All other modes of treatment have since been tried in this case without result.

CASE VII.—Mrs. M. F., aged fifty, was given five grains every three hours for severe pain in the right side of the face and ear, due to an epithelioma of the larynx. This dose relieved the pain, but she complained that it

made her sick at the stomach. The same dose of phenacetin was then tried, but it did not relieve the pain so well.

CASE VIII.—H. S., aged sixty-four, complained of most intense continual pain involving the entire head. This was afterwards found to be due to an alveolar abscess. The patient also had interstitial nephritis. Lactophenin gr. iv, p. r. n., relieved the pain, although it was necessary finally to increase the dose to eight grains to obtain results.

CASE IX.—Mrs. S., aged forty-five, has a family history of migraine on both sides, and has been subject to headache since a child. Her attacks begin with a feeling of chilliness, followed by severe shooting pains all over the body, this in turn being succeeded by violent headache of the ordinary migraine type. By taking four grains of lactophenin when she felt an attack coming, she was generally able to stop it. At times it was necessary to repeat the dose in an hour.

CASE X.—Mrs. W., aged thirty. Family history of migraine on mother's side. Patient has had attacks since she was sixteen years of age. Nothing except antipyrin ever had any influence in stopping an attack, until she was given five grains of lactophenin p. r. n. This, so far, has always aborted the attack.

CASE XI.—John D., fifty-two years of age, gave a history of having been subject to muscular rheumatism, usually in the muscles of the back, for the past seven or eight years. Lactophenin, gr. x, was prescribed, to be taken when he felt the approach of an attack. One or two doses taken thus have always aborted the seizure.

CASE XII.—Kate G., aged forty-five, had severe pains and stiffness in right sternomastoid muscle for two weeks. The muscle was also tender. Lactophenin, gr. x every four hours, was ordered. Three days later she reported herself very much better. At her third visit, five days after the first, she was entirely well.

CASE XIII.—M. O'N., aged thirty-nine, a chronic sufferer from locomotor ataxia, complained very much of severe shooting pains in the chest and legs. He was ordered eight grains of lactophenin, to be taken every four hours. Three days later he reported that the pains had ceased. Since then (six months ago), he has been able to control the pain with this remedy.

CASE XIV.—W. B., aged thirty-five, with locomotor ataxia; complained of severe darting pains in the legs. Lactophenin, gr. viii p. r. n., always relieved the condition.

In addition to the above the remedy was also given to four victims of ordinary headache, who did not return and were presumably relieved.

It will be seen that the drug was administered to five cases of neuralgia involving the branches of the trigeminus, four of whom were relieved; to one case of severe sciatica, that was benefited for a time; to two cases of severe reflex pain due to irritative conditions elsewhere; to two cases of migraine, two of muscular rheumatism, two of the characteristic pains of locomotor ataxia, all of whom received benefit from the use of the drug; and to four cases of simple headache presumably benefited.

Of the fourteen cases that we have been able to follow only one (Case V) entirely failed to be benefited.

In an outdoor clinic, of course it is not possible to study the influence of a drug upon physiological functions of the body, but it will be noticed that the lactophenin was administered freely to patients of all ages and conditions, and in none, excepting Case VII (who said it caused disturbance of the stomach), were any bad or unpleasant effects noted or complained of. In one case (Case VII) phenacetin failed where lactophenin succeeded. It would thus seem safe to say that lactophenin is a safe and efficient agent for the relief of pain.

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*SUCCESS OF THE VIENNA TREATMENT  
IN AFFECTING THE PASSAGE OF  
A SET OF FALSE TEETH.*

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BY HENRY L. WILLIAMS, M.D.

Service of Dr. Edward Martin, Howard Hospital.

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On returning to the Howard Hospital at about 11 o'clock on the night of July 18, 1896, an officer of the Salvation Army was found waiting in the dispensary in great disquietude of mind because of having swallowed his false teeth.

The history elicited was as follows: Arthur W., aged forty-two, married, the father of six children, had been addressing a meeting of the Salvation Army during the evening. At the end of his address, being exceedingly warm, he had taken a glass of ice-water, thrown back his head, and started to drink rapidly. With the first swallow he felt the plate which he wore in the roof of his mouth pass back into his throat. He made every effort to dislodge it by coughing and retching, but without result. Becoming fright-

ened, he then ran into the adjoining room, where his wife was in waiting. She was informed of the situation in a word, and immediately pounded him vigorously on the back between the shoulder-blades. Within a few seconds he felt the teeth begin to pass down the esophagus, with a sensation of scraping, followed by a feeling of entire relief. This was soon after 10 o'clock. He then went into the office of a physician close at hand, and was given two large pieces of raw apple to swallow in order to render certain the fact that the foreign body had passed into the stomach and was not lodged at any point in the esophagus. These he swallowed without difficulty. He was then referred to this hospital, and came at once.

Mr. W. is of German descent, a stone-mason by trade, rather short and thick set, and of powerful frame. He has always enjoyed absolute health. The plate was described as containing the two central incisors and the left first molar, and having at each end a small metal "hook" which clasped the base of the adjacent tooth and held it in position. The accompanying drawing was sub-

quences, was very great. The man was strongly advised to remain quietly in the hospital during the night, and await the visit of the surgical chief in the morning. This he declined to do. He also refused to take an emetic which was proposed with the hope that the body which had been swallowed might be ejected and thus all further danger eliminated. He then said that he would go home and just trust in the Lord, and, in case any symptoms developed, would at once return to the hospital.

I endeavored to show the man that if he neglected any measures that might aid in preserving his safety it would be most foolhardy, and advice was given him to at once drink copiously of lukewarm water and mustard, and to eat only mashed potatoes for the next forty-eight hours.

The patient returned the next afternoon in the best of spirits, with the following story:

On reaching home a little before midnight he at once took a pint and a half of warm water containing a tablespoonful and a half of Coleman's mustard. This failed to nauseate him in the slightest, but served to put him

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3

1. Two upper incisors. 2. Hooks to hold the plate. 3. First molar. 4. Body of plate.

sequently made from the plate, and accurate measurements taken, as follows: The greatest length from tip to tip was  $1\frac{3}{4}$  inches; the greatest width three-fourths of an inch. The hook which partly encircled the base of the left second bicuspid was made of hardened gold, rather slender and delicate, and projected one-quarter of an inch from the plate. The hook upon the right side, also of gold, clasped the base of the right canine tooth; this was likewise slender and rather sharp, but projected only one-eighth of an inch.

It was carefully explained to the patient that it was quite likely such a body would not pass the pylorus; that in case it did pass, the danger of its becoming caught at some portion of the intestinal tract and causing obstruction or perforation, with fatal conse-

quences, was very great. At 2 A.M. he awoke and ate a large plate of mashed potatoes which his wife had prepared for him. He then went to sleep at once, and woke next at 9 A.M., and again ate heartily of mashed potatoes. After this he once more slept for an hour, and soon after ten o'clock dressed and lay quietly upon the lounge. Shortly before noon he felt what he described as a "scratching sensation" which he located in the left iliac fossa over the line of the sigmoid flexion of the colon, attended with an impulse to evacuate the bowels. This he did, and obtained simply a normal stool. In about ten minutes he once more felt the call of nature, and this time discharged a large mushy mass, in which the teeth were discovered. In the mass immediately surrounding the plate were found



also large pieces of shaved beef, which had been eaten for supper on the previous night, and which, probably, quite as much as the potatoes, had protected and coated over the body in its passage through the intestines.

The man was in the best of spirits over his escape, and removed the plate from its old accustomed place, that it might be inspected, measured and drawn.

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*EUCAINE HYDROCHLORATE AS A LOCAL ANESTHETIC IN HYPERTROPHIC RHINITIS.*

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By LEWIS S. SOMERS, M.D.,  
Of Philadelphia.

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The new chemical compound, eucaine hydrochlorate, appears from the statements of German investigators, to be destined to supplant cocaine, especially on account of its decided action as a local anesthetic and the results so far obtained showing that, although the drug is toxic in large doses, still when compared with the cocaine salt *cateris paribus* it possesses much less toxic effects. From recent reports of its anesthetic action in eye surgery the majority of investigators concede eucaine to be of more value than cocaine.

I have recently used the drug in a series of cases of hypertrophic nasal catarrh, in place of cocaine, to produce anesthesia of the enlarged turbinals, so that reduction in their size by cauterization might be effected. A four-per-cent. solution of eucaine hydrochlorate in distilled water was used, this corresponding to the strength of cocaine solution previously employed for that purpose. The drug was applied to the turbinated bodies in the same manner as cocaine, by saturating a cotton plug with a definite quantity of the solution and applying it to the part to be operated on until anesthesia was completed. The cauterization was effected by means of chromic-acid crystals melted on the end of an appropriate applicator by means of the alcohol lamp. The results obtained can better be expressed by comparing the effects of the two drugs *seriatim*.

Cocaine usually produces its anesthetic effects in the nasal cavity in from three to five minutes, anesthesia continuing for twenty minutes to half an hour. In the series of cases in which eucaine was used, anesthesia was not complete until eight or ten minutes had expired, and the loss of sensibility remained about twenty minutes. When an excessive amount of cocaine solution is used in the nares, it occasionally flows backwards

into the naso-pharynx, producing a very uncomfortable sensation of numbness in that region. It was noticed that this did not occur so markedly when eucaine was used, probably because of its slower anesthetic action.

Eucaine causes hyperemia of the mucous membrane when locally applied. This action is directly opposed to that of cocaine, and renders the drug of little value when the turbinal tissues are much hypertrophied, as the cauterizing agent cannot be introduced into the nasal cavity without injuring the septum. This action of eucaine in producing a temporary local congestion militates greatly against the use of the drug in active inflammatory conditions, but may possibly be obviated by using equal parts of eucaine and cocaine, as recommended by Berger. Dr. Reichert, of Berlin, has used eucaine in the throat and naso-pharynx, and claims that aside from its anesthetic action, it is harmless in medicinal doses, not rapidly and suddenly affecting the heart as does cocaine.

This over-sanguine enthusiasm for the drug on the part of some observers should be carefully considered before it is used very freely, as eucaine is a poison similar to cocaine, but possessing the great advantage of being decidedly less harmful to the organism when used in the same doses. Dr. Reichert also claims that eucaine influences a curative action in diseases of the Schneiderian mucous membrane, independent of its anesthetic properties. Another advantage which the drug possesses over cocaine is that it may be kept for an indefinite time in solution with sterilized water, one part to ten. The solution may be repeatedly sterilized by boiling, without impairing its anesthetic properties.

Of minor importance is the fact that the price of eucaine is less than that of cocaine.

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*THE USE OF ICHTHYOL AS A LAXATIVE.*

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GUNSBURG has reported the use of this treatment in fifty women suffering from various inflammatory affections of the genitalia, accompanied by constipation and dyspepsia. The ichthyol was given in pills of three grains once, twice, or thrice a day. The result was that the constipation was overcome without any colicky pain or diarrhea, the appetite improved, and the pain in the abdomen decreased. As the taste of the ichthyol is disagreeable, Gunsburg suggests that it be given in keratin-coated or enteric pills.—*Bulletin Générale de Thérapeutique*, Oct. 23, 1896.

# The Therapeutic Gazette

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## Leading Articles.

### THE NECESSITY OF USING PURE DRUGS.

It would seem almost unnecessary to call attention in this journal to the necessity for the physician who prescribes his own medicines, or who permits the pharmacist to dispense them for him, to use the purest and best medicinal agents which the drug market can possibly afford; yet we have recently come in contact with a number of instances where physicians or pharmacists, with a false idea of economy and business foresight, purposely purchased low-grade crude drugs or medicinal preparations, thinking that thereby they would be pecuniary, if not moral, gainers. To us such an attempt seems to be a manifestation of the most short-sighted policy. The physician's reputation depends very largely, if not entirely, upon the success which he has in the treatment of the patients who come to him for his skill, and in many instances this skill in diagnosis and therapeutics is entirely counteracted by an impure or worthless drug. The great majority of surgeons—whose results are perhaps more manifest to the eye of their patients and

their friends than are the results obtained directly by the physician—always see to it that the instruments which they employ are made of faultless steel, that they are neither too sharp nor too dull, and that the dressings are adapted to the purpose of aiding most effectually in the rapid healing of the wound.

Perhaps the short-sighted policy to which we have referred is most common among persons in country districts who, for the sake of saving a very few cents on large orders of medicinal preparations, frequently obtain drugs which are not entirely reliable. In one particular instance which has recently come to our knowledge, a large firm of wholesale druggists found that they had a line of drugs which they did not consider perfectly reliable, and which they sold to another wholesale house, who immediately advertised them at low prices to the greater part of the medical profession in country districts, and, we regret to say, found a rapid sale for drugs which the first house had not been willing to sell to physicians or retail druggists, lest their reputation be tarnished.

The use of such preparations by the physician can be summarized in a few words: Poor drugs bring poor results; poor results bring a poor reputation; and a poor reputation brings little money.

### THE VALUE OF CLIMATE IN CASES OF GENITO-URINARY TUBERCULOSIS.

We are so accustomed to look to climate for beneficial influences in persons suffering from pulmonary tuberculosis that we are perhaps apt to overlook the advantages that can be afforded by this method of treatment in tuberculosis of other important organs, and, as a result, give a patient an unfavorable prognosis as to his condition, or insist that surgical measures shall be instituted for the removal of the infected organ.

In many cases, no doubt, surgical interference is the best treatment, since it not only removes the diseased area but to a great extent protects the rest of the body from a secondary infection. On the other hand, it should not be forgotten that in far advanced tubercular disease of the genito-urinary apparatus surgical interference often appears, by breaking down protective walls of lymph, to throw open the entire system to general tubercular infection, so that the patient more speedily succumbs to tuberculosis than he would had the original point of infection been left alone.

In this connection it is interesting to note the conclusions which have been arrived at by Dr. J. C. Munro, of Boston, in a paper contributed to the proceedings of the last meeting of the American Climatological Society. In order to obtain some definite idea as to the value of climate in genito-urinary tuberculosis, he sent out a number of letters to physicians inquiring as to their experience in this matter, and, out of seventy-five responses, obtained fifty which are more or less replete with valuable data.

The result of this collective investigation by Dr. Munro seems to prove, according to his conclusions:

1. That genito-urinary tuberculosis is benefited by climatic treatment.

2. That these patients should be sent to salubrious climates in the early stages of their disease, more frequently than has heretofore been the custom, and that moderately dry and equable mild climates are suitable for the majority of patients, the high and cold climates being reserved for the few.

Without doubt, the advantages which accrue to the patient under these circumstances are more largely due to the general improvement in his health and hygienic surroundings than to any direct influence which the climate may exercise upon the particular area of his body which is diseased. In other words, there is no direct effect produced, as there is in cases of pulmonary tuberculosis where the increased pulmonary exercise, the dry air and the avoidance of winds produce good results.

One point in this connection that is of very considerable importance—and one that is emphasized by Dr. Munro—is that excessive cold is particularly unsuited to those patients who, in addition to localized tubercular lesions, have some renal complication, since the chilling of the surface of the body greatly increases any difficulty of the kidneys and so aids in the progress of the general disease.

On the other hand, in the absence of severe heart and renal disease, it has been found that patients suffering from tuberculosis which is limited to the epididymis or the vesicles will in many instances do better in the climate of Colorado than in lower climates.

Again: exceedingly hot, dry climates are disadvantageous, particularly in prostatic and bladder troubles, because they are apt to impair the general health of the individual, and by the excessive action of the skin which they induce they cause a concentrated urine which distinctly increases the irritability of the bladder.

#### *THE DEGREE OF ANESTHESIA WHICH SHOULD BE INDUCED PRIOR TO SURGICAL OPERATIONS.*

Within the last few years we have called attention more than once, in the editorial columns of the *THERAPEUTIC GAZETTE*, to the importance of producing complete anesthesia before beginning an operation, particularly when chloroform is the anesthetic employed. In one of these editorials we emphasized our belief that fright has a very marked influence in increasing the danger which is ever present when chloroform is administered; and in another we pointed out that a possible cause of the large number of fatalities during the early part of the administration of chloroform might be traced to the fact that, combined with fright, there was sent to the heart a powerful reflex through the sensory and pneumogastric nerves as soon as the knife touched the skin of the patient or the surgical operation was begun. This is particularly apt to be the case under chloroform, because it would seem probable that early in the administration of this drug, while there may be some interference with consciousness and some benumbing of the ordinary sense of pain, there is not an abolition of tactile sense, but on the other hand rather a condition of excessive irritability of the nerves involved in this sense. Further experience has intensified our belief that our earlier views were correct, and the writings of leading surgeons and anesthetists the world over seem to point more and more to the correctness of this opinion. As an instance of this, we may quote the statements made by Dr. Hewitt, of London, in regard to this question. He points out that one chloroformist will work with light anesthesia, another with moderately deep anesthesia, and another with very deep anesthesia, but the success of Syme in administering chloroform appears to have been principally due to the almost invariable maintenance of a profound narcosis. He also points out, what the writer of this editorial has also pointed out in previous contributions to medical literature, that the very development of a profound narcosis tends to render the respiration regular and unhampered; whereas the administration of insufficient quantities of chloroform causes the respiration to be so irregular and uneven that it is impossible for the anesthetist during the course of a prolonged operation to make any accurate estimation of the quantity of chloroform which the patient is receiving. In other words, a part of the skill of an

anesthetist lies in his ability to give a sufficient quantity to induce deep anesthesia without giving enough to produce a condition of danger.

In many instances the surgeon is inclined to regard the early delays in the administration of an anesthetic as being a useless waste of time; and we have seldom administered an anesthetic for a surgeon, or watched its administration for one, without being impressed with the fact that his tendency is continually to hurry the anesthetist, with the result that the drug is often at first pushed more freely than the anesthetist himself believes to be proper. In our opinion, the most delicate stage in the administration of an anesthetic is during the period when the patient is passing from complete consciousness into unconsciousness, and, if the patient is well chloroformed, far less skill and knowledge is required to maintain the anesthesia in a condition of safety than was necessary earlier in the process.

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#### THE PRESENT POSITION OF THE GONOCOCCUS IN GYNECOLOGY.

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In a recent discussion in the Gynecological Section of the Sixty-eighth Congress of German Naturalists and Physicians, held at Frankfort-on-the-Main, Neisser called attention to the difficulty of formulating positive diagnosis as to the gonorrheal origin of disease of the adnexa. He states (*Archiv für Dermatologie und Syphilis*, bd. xxxvii, hefte 1 und 2) that it is quite otherwise in inflammations of the external mucous membrane the secretions of which escape externally. The mucous-membrane lesions show absolutely nothing which is characteristic of gonorrheal infection, and often the clinical history of the cases is not suggestive. In every suspected case the examiner should carefully inspect the urethra, the mucous-membrane immediately surrounding the urethral orifice, the cervical canal, and the orifices of Bartholini's glands. Moreover, rectal examinations should never be omitted. The vulva and vagina, often inflamed from the gonococcus in children, rarely show traces of involvement by this micro-organism in adults. Absolutely no characteristic alterations of the vulvar and urethral mucous membrane, such as papillomata, caruncles, and erosions, are excited by the gonococcus alone. Such lesions simply suggest a careful search for the gonococcus.

Although the culture methods as formulated by Bumm and Werthheim are extremely valuable, the diagnosis will mainly depend upon microscopic examination. This, when conducted by one thoroughly familiar with the appearance of the gonococci, is, with very few exceptions, absolutely reliable.

So-called "creeping" gonorrhea of women, caused by gonococci of lessened virulence, has no well proven existence. Even from the most chronic cases extremely virulent gonococci can be obtained. When gonococci are found, the diagnosis is established; if they are not found, it does not prove that they are not present, since they may lie in the deeper layers of the epithelium or be concealed in folds of the mucous membrane. Under these circumstances the examination should be repeated, and acute inflammation should be excited by application of irritating lotions. These repeated examinations should be made particularly when there is a persistent purulent discharge which is gradually increased from apparently insufficient causes.

Examination for gonococci is not only valuable from a diagnostic standpoint, but is also serviceable as a means of deciding when cure is complete. It is well known that gonococci may persist even after all subjective symptoms of inflammation have disappeared. These uncured cases—i.e., those free from clinical symptoms—are likely to become chronic and ultimately to develop ascending infection.

It is clear that treatment should have for its object not only the cure of subjective symptoms, but also the entire elimination of the gonococci. This end is attained by using medicaments which do not irritate the mucous membrane, which destroy gonococci, and which are not rendered neutral by chemical combination with albumin and mucin. The medicaments of choice are the salts of silver (argentin, argonin, argentum nitricum, actol, itrol), hydrargyrum, oxycyanatum, and ichthyol. The lotion employed must be brought in contact with every portion of the infected mucous membrane. It should be used as early as possible. Every effort must be made to prevent the infection from ascending.

Gonorrhea should be prevented by a careful bacteriological examination of the urethral discharges of men before they are allowed to marry, by similar repeated examination of prostitutes, and by a universal training of physicians in the various phases and manifestations of the disease and the proper method of searching for the gonococcus.

Saenger, taking up the subject of residual gonorrhea in woman, states that, after disappearance of the gonococci in the secretions, certain manifestations may remain. The period during which gonococci may persist is not known. It is evident, from examination of relatively fresh tubal and ovarian abscesses, that, in these closed spaces the gonococci do not long survive. It is possible they may disappear from the mucous membrane of the external genitalia, since, following gonorrhea, lesions are often found in whose discharges gonococci are not discoverable.

Saenger gives a rather elaborate description of these residua of gonorrhea, describing a macular vulvitis and sclerotic adenitis, urethritis, peri-urethritis, colpitis, endometritis, metro-endometritis, salpingitis, and in fact nearly all the inflammatory conditions which the gynecologist is required to treat. It is apparent that the gonorrheal origin of these lesions remains unproven, and that they exhibit no peculiarities necessarily inherent to gonorrheal infection. It is worthy of note that Saenger holds that the greater number of rectal strictures are of gonorrheal origin.

Bumm denies that gonococci lose their virulence, and holds that infection from an old case, if planted on healthy mucous-membrane, produces an acute attack; he states that the gonococci may persist and remain virulent in the genital tract for five or ten years. He still believes that the gonococcus is a pure mucous-membrane parasite, remaining in chronic cases quite superficial, and only exceptionally penetrating into other tissues and acting as the ordinary pyogenic micro-organisms do.

The prognosis of gonorrhea in women depends upon the frequency with which the endometrium and the tubes are affected. Of seventy-four cases observed from the beginning of infection to complete cure, Bumm states that sixty-nine had urethritis, fifty-three cervicitis, sixteen (twenty-three per cent.) endometritis, and seven (ten per cent.) salpingitis.

In tubal infection, he holds, treatment should be conservative. The patient should be put to bed at once, and should be given resorbent treatment. This is successful in the great majority of cases, although it often takes a long time. When the tube becomes converted into a large pus-sac with thin walls, operation is indicated—not, however, salpingotomy, but vaginal extripation of the uterus together with the inflamed tube.

This last contribution to the knowledge of gonorrhea, though bringing no new facts to the attention of the profession, is valuable as an authoritative statement, since Bumm and Neisser stand first in special knowledge of the gonococcus. These men accentuate the importance of bacteriological examination in all inflammatory conditions of the genitalia, and contradict a commonly accepted fallacy as to the comparative innocuousness of a long-standing gonorrhea; they state that the discharge of a neglected clap may remain contagious almost indefinitely, and bring before us with startling distinctness the danger of the disease when it attacks women.

It may be accepted without fear of contradiction, that Bumm's cases were treated in the most thorough and modern way known to science, and yet he tells us that ten per cent. suffered from salpingitis. He infers that in general statistics the percentage will probably be greater than this.

Perhaps the most valuable, if not the most important, teaching in the communications cited above, is the reliance which seems to be universally placed in the salts of silver.

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## Reports on Therapeutic Progress

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### THE SURGICAL TREATMENT OF FOCAL EPILEPSY.

SACHS and GERSTER contribute a paper on this important subject to the *American Journal of the Medical Sciences* for October, 1896. They draw the following conclusions:

1. Surgical interference is advisable in those cases of partial epilepsy in which not more than one, or at the utmost two, years have elapsed since the traumatic injury or the beginning of the disease which has given rise to the convulsive seizures.

2. In cases of depression or other injury of the skull, surgical interference is warranted even though a number of years have elapsed; but the prospect of recovery is brighter, the shorter the period of time since the injury.

3. Simple trephining may prove sufficient in a number of cases, and particularly in those in which there is an injury to the skull or in which a cystic condition is the main cause of the epilepsy.

4. Excision of cortical tissue is advisable if the epilepsy has lasted but a short time and if the symptoms point to a strictly circumscribed focus of disease.

5. Since such cortical lesions are often of

a microscopical character, excision should be practiced even if the tissue appears to be perfectly normal at the time of operation; but the greatest caution should be exercised in order to make sure that the proper area is removed.

6. Surgical interference for the cure of epilepsy associated with infantile cerebral palsies may be attempted, particularly if too long an interval has not elapsed since the beginning of the palsy.

7. In cases of epilepsy of long standing, in which there is in all probability a widespread degeneration of the association fibres, every surgical procedure is useless.

#### COMPRESSION IN TRAUMATIC NEURITIS.

DELORME contributes an article (*Journal de Médecine*, June 25, 1896), accompanied by notes of ten cases, on the treatment of traumatic neuritis. The first case was that of a soldier who, having received a bullet wound in the neck, became a martyr to neuralgic pain for twenty-three years. The cicatrix was removed several times by operation, and the galvano-cautery, caustics, etc., were applied without success, for the burning, lancinating pain still continued. The least touch or draught caused agony. In the second case a soldier injured the last phalanx of the right index finger, and for several months complained of severe pain shooting up the rest of the hand and up the arm. The other cases were more or less similar, consisting of accidents due to kicks from horses, etc., to which soldiers are liable.

In all these cases the writer obtained surprising results by the following method of treatment: The exact extent of the painful area is defined; then the patient, either sitting or lying, is supported by assistants, and the operator compresses the affected part, such as the finger, between his own finger and thumb, with all his strength. This is done successively over the whole extent of the hyperesthetic area, over and around the cicatrix, beginning at the most painful point. If after the first application, which lasts only a few seconds, any hyperesthesia remains, the performance is repeated after a few minutes' rest, and this may even be done a second or third time after a few days' interval; in many cases a single sitting is enough. The pressed finger is then wrapped up for eight or ten days in a wool dressing. After this treatment the finger, which previously could not be touched, however lightly, without provok-

ing extreme pain, can be handled with impunity, the sensation of touch may show little or no alteration from normal, and in the course of a little time trophic disturbances, even of long standing, disappear. Thus, in the first case quoted by the author, the pain completely disappeared after two sittings, with a four days' interval; the hyperesthetic area had completely recovered; the shoulder, which before was kept in a drawn-up posture in the effort to obtain ease, returned to its normal position; and the general health of the patient underwent a veritable transformation. It is now three years since the pressure was applied, and there has been no return of the pain. The other cases are all more or less similar. The author, it may be remarked, does not employ a general anesthetic, as he rather fears production of syncope, and he even thinks that a local anesthetic, though possibly useful in some cases, might in some respects be inconvenient, as it is important to know exactly the limits of the painful area. Lastly, he remarks that it is necessary to eliminate any hysterical factor before having recourse to this somewhat heroic treatment. —*British Medical Journal*, Aug. 29, 1896.

#### THE TREATMENT OF HEADACHE BY THE ADMINISTRATION OF METHYL BLUE.

LEROY (*Berliner Klin. Woch.*, No. 45, 1896) concludes, from the study of a limited number of cases, that we possess in this drug a very active remedy in certain forms of disease, and that it is capable of not only relieving but permanently curing pain which has resisted all other methods of treatment.

The disorders which, according to his observation, are most amenable to the methyl-blue treatment, are habitual chronic neurotic headache and angiospastic migraine. The amount prescribed was one and one-half grains four times daily; in general, fifteen grains sufficed for a cure; in certain cases the treatment had to be repeated after a week's interval. Bladder irritation was prevented by using, as Ehrlich suggested, an equal amount of powdered nutmeg with each dose.

The drug was taken readily by the patients, with one exception, and the only objectionable feature was the dyeing of the urine a dark blue or green. In habitual headache—that is, of the pure nervous type, and not symptomatic of some other disease—the author says methyl blue is of exceptional



value, and that in the cases he observed it acted like a specific, not only relieving the pain, but curing the pathological condition.

In a case of angeiospastic migraine, four and one-half grains of the methyl blue, given in three doses, two hours apart, at the onset of the attack, prevented its oncoming. If the dose were not given until the height of the attack, the patient vomited it, and no benefit accrued. Given at the proper time it was always effectual, the pain remaining very slight, and disappearing entirely by midday. Besides this immediate effect, the methyl blue produced a further good result: the attacks have become less frequent, and now come on only once in three months.

The author also details a case of pyelonephritis in which the administration of methyl blue seemed to give remarkably good results; there was a large amount of pus in the urine, and the patient had passed a number of renal calculi, while a large tumor was present in the region of the right kidney. Heart lesion contra-indicated operation, and the treatment with methyl blue was tried. The urine was deeply colored, but no trace of color could be found in the pus-cells or their nuclei, nor were the numerous forms of bacteria colored. The renal colic was cured, and after the stoppage of the medicine the pus gradually continued to decrease and was only slight in amount. The tumor can no longer be felt. This may be a case of spontaneous cure, but the methyl blue may have had an effect also. The author would himself employ this form of treatment in another similar case. It is worthy of note that the methyl blue had no serious effect upon the weakened heart, and, if anything, seemingly benefited the cardiac condition.

The author would recommend the use of this drug in cases of angeiospastic migraine, in neurasthenia, and especially in cases of pure nervous headache; he, however, does not believe it should be used until all other known remedies have proved unavailing.

SCHINDLER (*ibid.*, No. 46, 1896) calls attention to the fact that the above paper of Leroy is not the first clinical observation upon this subject, and that he, together with GUTTMANN, made a far greater number of clinical observations upon this subject, which were published in 1892. They called especial attention to the remarkable results obtained in pure nervous headache and in migraine. The prompt action of methyl blue in these remote affections of the head is in accord with its action upon neurotic and rheumatic disease

in other portions of the body. In a *résumé* of the former article this author says: "Methyl blue is a good remedy, especially in headache of a purely nervous nature and in uncomplicated neuralgic and rheumatic pains of the lower extremities and trunk. A comparison with the other anti-neuralgics would seem to favor methyl blue. In drunkards and in neuroses which have as their basis pathologico-anatomical alterations, methyl blue has, of course, no action."

The author does not believe that Leroy's article loses in worth because it loses priority, but is rather of value in being a second observation confirmatory of the action of this drug.

The author has found the drug useful in treating ischiatic inflammations. A patient who had suffered for thirty years was relieved, and has had no relapse, after a dosage of seven and one-half grains daily for ten days. The drug may also be employed in relieving the pains accompanying pleuritis, bronchitis, and other affections of the lungs.

The author warns very strongly against an individual predisposition or idiosyncrasy on the part of some patients for this drug; and although, in the majority of cases, a daily dose of fifteen grains can be readily borne, there are cases where serious though not dangerous symptoms are produced. The mild symptoms are: weakness in the limbs, paresthesia, mental prepossession, giddiness, and desire to vomit. There is no fever, collapse, or change in nutrition, and no derangement of the stomach. Large doses produce more marked symptoms of irritation, but so far have given rise to none that were dangerous. The drug is harmless in small doses, and effectual, while it is not dangerous, in large doses.

#### A NOTE ON PICRIC ACID IN THE TREATMENT OF SUPERFICIAL BURNS AND SCALDS.

In the *British Medical Journal* of September 12, 1896, POWER gives his results in the treatment of burns by picric acid. As he states, the treatment of superficial burns and scalds has long seemed to be most unsatisfactory, for these injuries are attended with an unnecessary amount of inflammation, while the act of renewing the dressings is unduly painful. From time to time the writer has tried various methods of treatment, and he has come to the conclusion that the picric-acid treatment is by far the simplest and the most satisfactory. The method is well known in

France, where it has been extensively used by Professor Thiery, while Dr. Filleul and Dr. Papazoglou have done their best to disseminate a knowledge of its value.

The solution is made by dissolving a drachm and a half of picric acid in three ounces of alcohol, which is then diluted with two pints of distilled water, or, more accurately: Picric acid, 5 grammes; alcohol, 80 grammes; dissolve; add 1000 grammes distilled water. This is a saturated solution of picric acid.

The clothing over the injured part should be gently removed, and the burned or scalded portion cleaned as thoroughly as possible with a piece of absorbent cotton wool soaked in the lotion. Blisters should be pricked, and the serum allowed to escape, care being taken not to destroy the epithelial surfaces. Strips of sterilized gauze are then soaked in the solution of picric acid, and are so applied as to cover the whole of the injured surface. A thin layer of absorbent cotton wool is put over the gauze, and the dressing is kept in place by a light linen bandage. The moist dressing soon dries, and may be left in place for three or four days; it must then be changed, the gauze being thoroughly well moistened with the picric-acid solution, for it adheres very closely to the skin. The second dressing is left on for a week.

The advantages of this method of treatment are: first, that the picric acid seems to deaden the sense of pain; and secondly, that it limits the tendency to suppuration, for it coagulates the albuminous exudations, and healing takes place under a scab consisting of epithelial cells hardened by picric acid. A smooth and supple cicatrix remains, which is as much superior to the ordinary scar from a burn as our present surgical scar is superior to that obtained by our predecessors who allowed their wounds to granulate.

The writer has used this method for more than a year in hospital practice, both among out-patients and in-patients, and has every reason to be thoroughly satisfied with the results obtained. It is not an ideal method, for it stains the clothes and discolors the hands of the surgeon, but it is a great improvement upon anything else he knows of.

general practitioner. He does not attempt to discuss the nature, symptoms, and pathology of chronic endometritis, but confines himself to treatment.

There are two improvements in gynecology which make intra-uterine medication a much simpler thing, and one which can be much more freely and safely used, than was formerly the case. One is the principle of rapid dilatation of the cervix to any desired extent by graduated bougies, formulated by Hegar; the other is the regular and systematic use of antiseptics in all gynecological operative procedures, however simple. When the os was narrow, and its canal not patent—which, however, is rarely the case in old-standing endometritis really suitable for intra-uterine medication—we had formerly no means of reaching the endometrium except dilatation with sponge or laminaria tents—contrivances now entirely disused as being dangerous, clumsy, septic, and apt to lead to secondary mischief. Now we are able to reach any part of the uterine cavity in a short time, and, when rigid antiseptic precautions are used, with practical safety, but with this disadvantage—that anesthesia is required, and the manœuvre is, therefore, raised to the dignity of a considerable operation—at least, in the eyes of the patient.

Several methods of intra-uterine medication mentioned in Playfair's original paper, he now puts aside as absolutely inadmissible—such as injection of fluids, introduction of medicated tents, zinc points and the like, or of solid pieces of caustic, as recommended by Courty, experience having shown that such devices are either too dangerous for ordinary use, or too clumsy and ineffective; it would therefore be a waste of time to discuss them.

Perhaps, for general use, the plan of brushing over the endometrium with some medication is still one of the most generally applicable. The plan recommended in his original paper is as good as any other that has been suggested. Briefly, it consists in swabbing out the uterine cavity in the first instance with a flexible probe covered with a thin layer of cotton wool, dipped first in water and then in glycerin. The object of this is to wipe away the tenacious, glairy mucus which exists in such abundance in cases of chronic uterine catarrh. If the probe is bent in a suitable curve, there is generally no difficulty in introducing it through a cylindrical speculum, since the os and cervix are usually abnormally patulous. After this, a

#### ON MODERN METHODS OF INTRA-UTERINE MEDICATION.

PLAYFAIR in the London *Practitioner* for September, 1896, writes most interestingly upon a subject of great concern to every

similar probe is dipped in equal parts of absolute phenol and glycerin, and the uterine cavity is swabbed out with it. This application should be made twice in the week immediately following menstruation, and not repeated until after the next menstrual period. If practiced too near the expected commencement of menstruation it is apt to prove irritating, and he has then known it to cause a pretty sharp hemorrhage. Immediately after menstruation the deeper layers of the endometrium are doubtless more accessible, and thus a better result is obtained. He has never known any bad consequences follow this practice, probably because the strong carbolic is itself antiseptic.

There are, however, some drawbacks to this method of treatment: It is difficult to use if the cervical canal is not patulous, and if the practitioner is rough and unaccustomed to gynecological manipulations it may cause a good deal of pain; moreover, it takes considerable time and repeated applications to be of permanent benefit. The author has usually limited it to two sittings within the week following the period, and he is inclined to say that from six months to a year would be required to produce as good a result as can now be obtained from one-fourth the number of "treatments," and these limited to six weeks, by one of the improved methods presently to be discussed. At the same time it is right to point out that it requires no expensive and elaborate plant to carry out; that it involves no anesthesia or preliminary dilatation; and that, although tedious and slow, in well selected cases it is thoroughly effective. He believes in the use of equal parts of crystalline carbolic acid and glycerin as a topical application. Iodized phenol, however, and other reagents have been used with advantage.

Curettement is unquestionably at present the favorite and fashionable method of intra-uterine medication. It consists in scraping away the superficial layer of the endometrium, and generally after this has been done the surface thus bared is swabbed with liquor iodi or some similar application, used as an antiseptic, but which may, so far as a single application can, have some modifying influence on the endometrium. If this plan is not adopted, or in combination with it, packing of the uterine cavity with antiseptic gauze is frequently practiced.

Curettage was at first chiefly used for cases of the so-called "fungoid endometritis"—that is, cases in which numerous vegetations are

scattered over the endometrium, giving rise to profuse menorrhagia. No one who has used it for cases of this kind can doubt its efficacy. Every gynecologist must have met with cases of menorrhagia which have been completely and permanently benefited or cured by curettement. Of late, however, it has been maintained by many that it is equally effectual in chronic uterine leucorrhea of old standing, uncomplicated with menorrhagia, and in which there is no reason to suppose that vegetations of the endometrium exist.

It is claimed that one thorough curettement will do as much as a more extended treatment of other kinds, and that it may itself be curative. If this were so, no doubt the gain would be great. This, however, is certainly not the writer's experience. He has seen many cases of very marked chronic endometritis which had been curetted—sometimes more than once—and which were very little bettered by this operation. He has curetted cases of this kind with a like unsatisfactory result. When one reflects that, in curetting, only the superficial surface of the endometrium is scraped away, and that the deeper portions of the uterine glands, the parts principally affected, are left untouched and their nutrition unmodified by such medication as is given by carbolic acid or by the electric current repeated at intervals, the merely temporary good result following curetting is readily understood. As a preliminary, however, to other treatment, or in cases in which treatment extended over weeks or months is impossible, curetting of the endometrium will always be an important and valuable resource, even when there is no evidence at all of the existence of vegetations.

Playfair prefers, as a means of intra-uterine medication, the application of the negative electric current after the plan introduced by Apostoli. He makes this statement with fear and trembling, for the mere mention of Apostoli and his methods acts on some gynecologists as a red flag on a bull. No words are too strong to express their contempt for a remedial agent which has certainly been discredited by the over-zealous advocacy of its originator and by the prejudice of its opponents. It must be admitted at once that as regards fibromyomata the use of electricity has not by any means justified the expectations, far too high-pitched as they were, at one time formed with regard to it. This is not the place to discuss that subject; but,

briefly, this is due to the fact that, in small hemorrhagic fibroids, electricity, although its hemostatic power seems to be proved to demonstration, is too uncertain in its action to be reliable, its effects being negated by physical causes varying in each particular case and needless to discuss here, and that therefore radical treatment by removal of the appendages is generally better, while in large tumors it is usually inapplicable. The use of the current to promote absorption has been discontinued by common consent as too dangerous for general use. But the application of the negative current to the endometrium in non-myomatous uteri, for endometritis and severe dysmenorrhea, is on altogether a different footing. The precise method of its action is doubtful, but it appears to modify the nutrition of the endometrium and its deep-seated glands in a very remarkable manner.

The author has rarely used more than five or six applications—generally three after one period and two after another—of from 80 to 100 milliampères of the negative current. This is practically painless, nor has he seen a single case in which any subsequent mischief resulted. The efficiency of this method of intra-uterine medication is best proved by the frequency with which it is followed by pregnancy in old-standing cases of acquired sterility. It will generally be admitted that there is no better test than this of a healthy endometrium when the pregnancy has been preceded by a long period of sterility.

Take, for example, such a case as the following, which is selected almost at random:

Mrs. L., who had never been pregnant, suffered from very profuse uterine catarrh and severe dysmenorrhea, for which she had the cervix dilated and the endometrium curetted by a well known gynecologist, with no great benefit. Playfair treated this patient with the electro-negative current in October and November, 1892, making five applications. The discharge was stopped and her general health greatly bettered. She missed her period in January, 1893, and was delivered of a healthy child in November of the same year.

It would be difficult to doubt the relation of cause and effect here, and it is to be noted that this patient had already been treated by curettement.

The author is, therefore, decidedly of the opinion that for neatness and efficiency the electrical treatment of the endometrium is clearly the best at our disposal in suitable cases.

# THE REMOVAL OF FOREIGN BODIES FROM THE SUPERFICIAL TISSUES OF THE EYE, AND THE TREATMENT OF THE RESULTING LESIONS.

In the *Occidental Medical Times* for August, 1896, BRIGGS states that every eye in which symptoms of irritation, congestion, photophobia, lacrymation, etc., are present, should be examined with scrupulous care for foreign bodies.

In all eye-injuries the rules of antiseptic surgery should be carefully observed. Never attempt to remove a foreign body from the eye with an instrument that is not aseptic.

Cleanse the eye with a 1:5000 bichloride solution, and apply antiseptic dressings, when there is the least suspicion that the wound may be infected.

When suppuration of the corneal wound has taken place, active measures must be promptly applied to check the trouble. In beginning of trouble antiseptic dressings, iodoform, hot water, may be tried, but the galvano-cautery or subconjunctival injections of bichloride solution should be used if improvement is not prompt.

Use the greatest possible care in removing foreign bodies from the cornea, to avoid injury to healthy tissue. Carefully insert a spud with a dull edge under the foreign body, and lift it out instead of scraping over the body, as is too often done.

When the foreign body is iron or steel, the electro-magnet is occasionally valuable. When the steel has nearly passed through the cornea this is the safest means of extracting it. The entrance wound must generally be enlarged to enable the magnet point to come in direct contact with the metallic fragment.

Dirt, lime, powder, etc., can generally be removed by directing a stream of warm boiled water against the open eye, assisting the process by gently wiping the foreign substance away with a pledget of absorbent cotton. Caustic substances must be removed with the greatest possible haste.

Powder, which cannot be washed away, should be carefully removed by a sharp-pointed knife or needle. Do not dig too energetically, especially near the central portion of the cornea, as much greater injury is frequently caused by too persistent and unskilled efforts at removal of powder grains.

Powder grains in the conjunctiva are readily removed by snipping off a small piece of

conjunctiva with scissors. They rarely cause irritation, but are cosmetically objectionable.

After removal of caustics, molten iron, and substances which cause extensive injury to the cornea and conjunctiva, great care must be taken to prevent the lids adhering to the eyeball. The transplantation of rabbits' conjunctiva, or Thiersch's method of skin-grafting, may be necessary to prevent this unfortunate condition taking place.

#### *CHELIDONIUM IN THE TREATMENT OF CANCER.*

Among the many medicinal virtues that have been popularly imputed to the juice of *Chelidonium majus* is that of curing warts. Acting on this hint from domestic practice, Dr. DENISSENKO (*Vratch*, 1896, No. 30; *Deutsche Medizinisch-Zeitung*, Sept. 24, 1896) has tested its action on carcinomatous growths in the municipal hospital at Brjansk. In his early experiments he used the fresh juice of the herb, but those trials were imperfect, partly because the fresh juice could be obtained only during two months in the year. Consequently, since February, 1895, he has been using the extract found in the shops.

His method of employing chelidonium is as follows: He directs that from twenty-two to seventy-five grains of the extract shall be taken internally, dissolved in distilled water or peppermint-water, every day throughout the treatment. Into the substance of the tumor, as close as possible to the boundary between it and the healthy tissue, he throws a number of injections of from two to four drops of a mixture of equal weights of the extract, glycerin, and distilled water, not exceeding a syringe-ful in all. The frequency with which these injections are given is not stated. If the tumor is ulcerated, he paints its surface twice a day with a mixture of one or two parts of the extract and one part of glycerin. Iron, quinine, and other supporting remedies are employed according to the indications.

Except in a few cases, the internal use of the drug caused no disturbance of the stomach, but the painting of the ulcerated surface gave rise to a slight transitory burning. It was different with the parenchymatous injections; in all instances, after the injections, especially after the first one, there was burning pain at the site of the operation, the patient felt weak, experienced a more or less severe chill, and then the temperature rose to between 100° and 102°. Although

these symptoms disappeared on the following day, Dr. Denissenko saw reason to exercise a certain amount of caution in the use of the injections.

The effects of this treatment were shown in the course of a very few days. They were the following: 1. The sallow hue of the skin disappeared. 2. Softening of the tumor set in. 3. After from three to five days, there formed at the points of injection fistulous tracts about which the softening process went on with special rapidity. 4. In from fifteen to twenty days a line of demarcation could be distinguished between the morbid and the healthy tissues; the one seemed to be forced away from the other. In general the tumor diminished more than half in circumference, and the affected lymphatic glands of the neighborhood underwent involution.—Editorial in *New York Medical Journal*, Oct. 10, 1896.

#### *THE THERAPEUTIC VALUE OF HYDROBROMATE OF SCOPOLAMINE IN PLASTIC IRITIS.*

In the *American Journal of the Medical Sciences* for November, 1896, OLIVER concludes an article on this subject as follows:

Hydrobromate of scopolamine is of the greatest value in the local treatment of the various forms of plastic iritis. Its primary reparative action and quieting power, as compared with those of similar doses of sulphate of atropine, in the treatment of plastic iritis, are generally much more prompt, even when the latter drug is used in doses equal to quadruple or quintuple the strength of the former. Its healing and soothing effects do not seem to be so lasting, even when the drug is used in four or five times the strength of the atropine.

For quick and active measures, which are so eminently necessary in incipient cases of plastic iritis, and during the early stages of inflammatory reaction, the scopolamine salt is to be preferred to the atropine; but where prolonged use of such drugs is necessary, as in many cases of the chronic form of the disease with subacute exacerbations, the alternate employment of scopolamine and atropine seems empirically to be the best method of local administration that has been devised.

As clinically employed, the best salt of the alkaloid seems to be the hydrobromate; the best method of instillation, dropping the solution upon the upper corneal border while the lower punctum is everted and the cor-

responding canaliculus is pressed upon; and the most efficient amount to be used at one sitting, two drops of a one-tenth of one per cent. strength (1:500), repeated, if necessary, as often as three times during the course of an hour, and preceded, when desired, as in some instances where there are much irritation and pain, by two drops of a two-per-cent. solution of hydrobromate of cocaine a few minutes before each instillation of the scopolamine.

#### *CLIMATE IN THE TREATMENT OF DISEASE.*

The joint article by Dr. HERMANN WEBER and Dr. MICHAEL FOSTER upon "Climate in the Treatment of Disease," which appears in the first volume of Dr. Clifford Allbutt's System of Medicine, is a very careful piece of work, and gives probably the best summary of the subject at present available. We propose to indicate some of the principal views of the writers which serve to "mark time" in this department of practice—a department beset with great and peculiar difficulties. Exact knowledge and definite therapeutic rules are more difficult of attainment in climatology than in most other branches of medicine, owing to the complexity of the phenomena involved, the vast range of the facts which must be passed in review, and the comparatively recent growth of systematic attention to the subject. But the importance of the subject is great and growing. The writers of the article in question remark very justly that "in former times climatic treatment was almost limited to diseases of the respiratory organs, but at present we know that the treatment of almost every chronic deviation from health may be assisted by judicious change of climate." What is required is more precision in the choice of localities and a juster appreciation alike of the potentialities and the limits of climatic therapeutics. The patient who expects that change of climate is all that is required to cure his malady, and the practitioner who recommends a given climate in a haphazard way and on mere general principles, represent two opposite types of error on this subject which a wider and juster knowledge will serve to dissipate.

Naturally the case of phthisis first presents itself for consideration, owing to its pre-eminent importance and to the fact that it has received more study and attention than that of other diseases. The selection of a

suitable climate for a phthisical patient is, as the writer truly says, "often one of the most difficult problems with which the physician is confronted." This arises not so much from the obscurity of the subject as from the fact that our choice of climate is so often circumscribed by extraneous considerations, such as the poverty of the patient, the necessity of selecting a locality where facilities exist for earning a livelihood, and the difficulties of securing suitable accommodation, congenial surroundings, and proper companionship. A locality theoretically desirable on meteorological grounds may be too inaccessible, or the hotel accommodation may be inferior, or there may be a complete lack of civilized society, occupation, and amusement; we cannot afford to neglect any of these considerations, but it is obvious that they serve to complicate the subject to an indefinite extent. In any case of phthisis calling for climatic change we should first consider whether the high altitudes are likely to be suitable. Drs. Weber and Foster are of opinion that "early cases of either unilateral or bilateral phthisis in young and fairly vigorous persons, in which the disease is of a limited character and the pyrexia moderate, should be sent to the Swiss Alps in preference to any other resort. In young persons a sojourn of one or two years in the Alps will probably not only arrest the disease, but so establish the constitution that the patient may cautiously resume his occupation at home." We believe this to be a sound rule, though we should be disposed to express the prognosis in such cases a little more guardedly. Disappointments are frequent, but the general results are undoubtedly good and often surprising. We are entirely in accord with the writers with regard to the succeeding paragraph: "In the early days of high-altitude treatment a history of hemoptysis was looked upon as a bar to the employment of the climate; the reasons for this belief were mainly theoretical, and a more extended experience has shown that the very reverse is the fact and that hemorrhagic cases do particularly well there." The confusion which has existed in the profession with regard to this subject is regrettable. There are still some who teach that hemoptysis is a bar to the sea voyage, just as it was formerly regarded as a bar to the mountains, the one opinion being as unfounded as the other. The true view seems to be that existing or very recent hemorrhage precludes change of climate altogether, but that past

hemorrhage is no bar to the sea voyage or the mountains: it may even, in a guarded and limited way, be held to be an indication for the mountains, but the problem will generally be better decided on other grounds. The writers also recommend the mountains in limited and quiescent cases of the third stage of phthisis, and in cases that have arisen out of, or are complicated by, pleurisy. The chief contra-indications to the mountains are held to be albuminuria, degenerative disease of blood-vessels, ulceration of the intestines, advanced laryngeal mischief, especially perichondritis and ulceration of the arytenoids, active tuberculization, extensive destruction of lung tissue, constitutional erethism, and advanced age. These, we believe, are thoroughly sound rules. Colorado is recommended as possessing a climate "little, if at all, inferior to that of the Swiss Alps," and affording ample opportunities for the earning of a livelihood. "Young subjects, the children of tubercular parents, not themselves tubercular, but for whom a change of climate is thought advisable as a prophylactic measure—as, for instance, after a pleural effusion—will do better in Colorado than elsewhere." Australia is recommended in cases of early consolidation in which there is no fever and in quiescent cases where excavation has ceased to progress. Similar rules hold with regard to South Africa, but it must not be forgotten that in that country nearly all the favorite resorts are at a considerable elevation (from 2000 to 4000 feet), whereas most of the Australian plains (the Darling Downs are an exception) are at a low elevation. We have little doubt that when the accommodation is improved South Africa will hold a leading place as a sanatorium. At present only the harder type of patient should be sent thither. The cases suitable for Egypt are thus enumerated: (*a*) cases complicated by bronchitis in which emphysema is also present; (*b*) cases of bronchiectatic phthisis which have already spent a winter or two in the Alps; (*c*) cases for which the Riviera is too cold; (*d*) cases of early consolidation in which for some reason the Alps are contra-indicated; (*e*) cases with albuminuria in which the destruction of lungs is not very great; and (*f*) cases in which insomnia and nervous irritability form prominent symptoms. The leading contra-indications to Egypt are intestinal ulceration or a tendency to diarrhea, laryngeal ulceration, and the early occurrence of acute pneumonic symptoms. The Riviera is recommended for

cases which find the Alps too cold, for cases complicated with catarrhal pneumonia or bronchitis, and some forms of laryngitis. Madeira may be tried where there is much irritability of mucous membranes or emphysema. The sea voyage is useful (*a*) where phthisis is part of a general breakdown from overwork; (*b*) in cases of limited consolidation, without fever; and (*c*) in some cases where cavity formation is not extending. The contra-indications to the sea are laryngeal and intestinal complications, debility and fever. We forbear criticising the above rules for want of space, but at least in the main we can fully endorse them.

We now turn to the cases of other diseases, for which the rules are easier and less complicated. Bronchitis in young persons is often benefited by the mountains, but in elderly persons the Riviera, Egypt or the Canaries will be found more suitable. Where there is irritable cough without expectoration, Madeira, Pau, Arcachon, Torquay or Queens-town may be tried. Emphysema calls for dry and warm inland or coast climates, or if attended by dry cough the resorts just enumerated for bronchitis will be found suitable. Asthma is too erratic a disease to admit of definite rules: young subjects are often benefited by a stay in the Alps; senile patients may try Egypt or the Riviera; many asthmatics do best in large towns. "Scrofula"—*i. e.*, lymphatic tuberculosis—is notably benefited by a bracing marine resort, and sea voyages are also useful. Gout and rheumatism demand warm and dry inland climates or fairly warm seashores. Warm and dry climates are useful also in renal and vesical diseases. Dyspepsia is often signally benefited by change of climate, but precise rules are difficult to formulate. Dry, elevated regions and warm, bland climates will be found suitable in different cases. Nervous affections will often be influenced favorably by climate, change, and travel. We must demur to the recommendation which Dr. Weber and Dr. Foster make of sea voyage in hypochondriasis, at all events in its graver forms. On the whole, when there is either much excitement or much depression, sea voyages are contra-indicated. The mountains are also, on the whole, unsuitable for most cases of nervous disorder. Sedative localities, like Pau, or moderately bracing localities, like Malvern or Bagatz, will suit different cases.

We conclude with the paragraph in which Drs. Weber and Foster sum up the characteristics of the climate of England. "We

must acknowledge that the climates of England are rather moist, that the air is often dull and sunless, that rain falls on comparatively many days and is distributed over many hours, that the wind is often high and chilling, and that the shelter is limited. On the other hand, the hygienic conditions are better than anywhere else, the food is good, and the separation from the family is less. The climates of England belong to the most health-giving climates for the fairly vigorous, but are less good for the delicate invalid. If, however, a delicate person is obliged to stay at home or near home, it is often possible for him by judicious management to obtain great benefit by availing himself of all the advantages and defending himself from the injurious influences of the home climate."—Editorial, *Lancet* (London), Aug. 8, 1896.

#### A WORD ON THE SYMPTOMS AND TREATMENT OF PLEURISY.

In the *Northwestern Lancet* of October 1, 1896, ABBOTT, in discussing the subject of pleurisy and its treatment, says that the salicylates and other anti-rheumatics have been recommended on the theory that pleurisy is rheumatic. While some cases may be rheumatic, others certainly are not, at least one-third being tubercular; and in the writer's experience this class of remedies has failed in a great number of cases to accomplish anything in the way of amelioration or cure, doing no good in promoting the absorption of fluid, and little if any in relieving the other symptoms. Fixation of the chest by plasters in some cases seems to afford relief by preventing motion and the painful rub of inflamed surfaces, but in many patients the irritation caused by the plaster is more complained of than the pleuritic pain, while the presence of the plaster interferes with accurate examination of the patient.

Blisters make a bad matter worse. It is bad enough to suffer the ills that Providence sends, without being tortured by the doctor in addition. As to poultices, they are a delusion and a snare: even if hot when applied, they soon become cold, and the alternation of the hot, slimy nastiness with the cold one cannot do much good, while the interval between the removal of one and the application of the other is fraught with danger to the patient, who is uncovered for the purpose of changing. The same objection applies to the use of poultices in pneumonia. We often hear of wonderful results from these things,

but they are more often *post hoc* than *propter hoc*.

If any external application is used, none is so good as cold. An ice-coil or an ice-bag would often alleviate pain and give great relief. Cold cloths are bad because they make the clothing wet.

Morphine or some form of opiate, of course, will do better than anything for the relief of pain, and should be used freely enough to make the patient comfortable. If an effusion comes on rapidly enough to cause dyspnea, stimulants may be needed; and medication should be adapted to symptoms and conditions which demand it.

If an effusion is large, no time should be lost in removing it. The physical signs are sufficient to satisfy us in most cases in regard to this; but, if not, a needle thrust into the cavity will soon settle the diagnosis. In nearly all cases where there is an effusion there is a thick plastic exudation on the surface of the pleura. If we wait for the lung to become compressed and the exudate to become organized, we will have a hopelessly crippled lung. The argument has been advanced that if we aspirate early the inflamed surface will immediately pour out a fresh supply, and so no good will be accomplished. But even if this does occur, we can aspirate again; it will not take a great amount of food and drink to furnish a fresh supply of serum. We see too many sunken chests that are the results of too long waiting, not to feel convinced that an early interference is the wisest course to pursue. It is not necessary to remove all the fluid—indeed, the removal of a moderately small amount will often relieve the pressure and start the process of absorption, which will then go on unaided. As soon as the patient begins to cough or to feel a sense of tightness around the chest, it is time to stop. If the physical signs are sufficient to convince us that fluid is present, one negative puncture should not discourage us; the needle may have simply penetrated an adhesion on one of the numerous trabeculæ present, and then of course no fluid would be obtained. If the needle and skin and doctor are clean, there is no danger in making enough punctures to give absolute certainty.

Absorbents, as iodides, etc., are of little avail, though they amuse the patient while we are waiting to see what nature will do. Cathartics and diuretics will accomplish much if liquids are kept from the patient; otherwise they will not do much good. The writer



has seen large effusions rapidly absorbed in this manner, which as rapidly reappeared when the free use of water was allowed, to again disappear on placing the patient again on the dry diet. This combination of drugs and diet will do more than any form of medication; but if the effusion persists or the dyspnea is urgent, nothing is to be gained by waiting, while much may be lost. It is well, if the case be not urgent, to wait and see what nature will accomplish, but we should not confound natural recuperation with the strain of natural endurance, which is liable at any moment to result in collapse. We do not carry out this policy in other cases. In obstetrics we do not wait so long before we use version or the forceps; in dentistry we pull or fill the offending tooth; in abdominal work we perform laparotomy, even for exploration; but in thoracic effusion too many will sit down, after demonstrating the presence of a painful of water, and wait, like Mr. Micawber, for something to turn up. If the aspirator shows pus instead of serum, the question arises: Should we make a free incision, or wait? The decision then depends much on the condition of the patient and the character of the pus. If the pus is septic and the temperature high, the sooner the whole cavity is emptied and drained, the better; if not, there is no harm in waiting a moderate time to see if the pus again forms.

Years ago we used to hear a great deal about serous effusions becoming purulent after repeated aspirations, and the supposition was advanced that all or most effusions were serous in the beginning; but since the days of assepsis we hear very little of changes of that sort.

#### WALCHER'S POSITION IN PARTURITION.

M. E. FOTHERGILL, of Edinburgh, in the *British Medical Journal* of October 31, 1896, says that Walcher's position—the *Walchersche Hängelage*—was first described by Walcher in 1889 in a short article in the *Centralblatt für Gynäcologie*. By placing the parturient patient in the lithotomy posture, and then allowing the legs to hang freely down so that the feet do not touch the floor, the true conjugate is increased about one centimeter; this statement has been proved by numerous observers abroad, and the posture is now in use as a matter of routine in several German hospitals. It is employed in all high forceps operations, in extractions after turning, and after perforation of the head. Fothergill has

found the posture extremely useful in several cases, which are briefly noted.

In posing the patient, all that is necessary is to see that the buttocks are quite at the edge of the bed or table used, and high enough to allow of the feet hanging clear of the floor; pillows may be placed under the buttocks if the bed is low. There is a tendency to pull the patient off the bed; but she may be held by the anesthetist, or bands may be passed under her arms and fastened to the bed or table-legs so as to hold her in position. In this posture the axis of the pelvic brim presents downwards at an angle of about 40 degrees; therefore, in order to exert traction in the proper direction with forceps, the operator must sit on a low stool, or on a cushion placed on the floor.

In high forceps cases, and after perforation, the position saves (1) the strength of the operator; (2) pressure on the head; (3) pressure on the symphysis; (4) pressure on the perineum by forceps. In cases of difficulty at the brim not needing forceps, and in breech cases, the position saves (1) exertion to the uterus and abdominal muscles; (2) pressure on the head; (3) pressure on the pubic symphysis. In all cases, with or without forceps, where the perineum is in danger, extension of the legs at the hips is of advantage in relaxing the integument and subjacent structures at the vulvar orifice.

#### THE MANAGEMENT OF THE SENILE HEART.

BELL writes on this important subject in the *Northwestern Lancet* of October 1, 1896. It is a topic which, though well worn, is always of interest, and therefore we present our readers with his views. He thinks that for the relief of the more or less high intra-arterial pressure we are to rely largely on the iodides and nitrites. He has found the iodide of sodium, in from two- to five-grain doses, repeated three times daily, of marked benefit in dilating the arterioles, thus reducing intra-arterial pressure; the iodides, having a much more prolonged action than the nitrites, are to be preferred for internal administration. The digitalis group, consisting of digitalin, strophanthus, strychnine, caffeine, sparteine, etc., render most excellent service in giving tone to the weakened myocardium, when combined with vascular stimulants like the iodides and nitrites.

In the management of pronounced cardiac insufficiency, no method of treatment has

proved so eminently satisfactory in the writer's hands as that of subcutaneous medication, assisted by baths, saline cathartics, Swedish movements, and massage. During the past three years it has been his pleasure to see many cases of advanced cardiac dilatation respond to strychnine, digitalis, nitroglycerin, and atropine, hypodermically administered, which would speedily have succumbed under any other treatment at his command.

In order to secure the best possible results, strychnine, digitalin and nitroglycerin should be combined for a time, later omitting the digitalin, or using it interruptedly, according to indications, in every case increasing the dose of strychnine until it produces muscular twitching, and there maintaining it. The smallest dose of nitroglycerin capable of producing the desired dilatation of arterioles should be the rule. It has been the writer's custom to begin with one-fortieth of a grain of strychnine, repeated every six or eight hours, gradually increasing the dose until its characteristic muscular manifestations appear, always combining it with nitroglycerin, and adding digitalin as indicated.

Subcutaneous medication is especially indicated in the aged, owing to their naturally feeble gastric absorption, but more especially in the management of cardiac dilatation owing to the accompanying gastric catarrh resulting from venous engorgement. It is urged against the subcutaneous method of treatment that it requires the presence and expense of a trained nurse; on the contrary, any intelligent person can be quickly trained to use the hypodermic syringe, thus enabling the physician to carry out the treatment at the patient's house without additional expense.

In suitable cases, saline baths of a proper temperature are an efficient aid in freeing the peripheral circulation, thus relieving venous engorgement and its attendant ills. Bell begins with a bath of ten minutes' duration—forty gallons of water at 100° F., gradually lowered to 92°, holding in solution four and one-half pounds of chloride of sodium. This is repeated daily for some days, then less frequently, gradually increasing the amount of salt, as well as the duration of the bath, from day to day, until the patient remains in the bath at least twenty minutes. He has never observed any unpleasant effects; on the contrary, in the majority of cases patients have expressed themselves as feeling relieved and refreshed. During the bath the pulse becomes slower and fuller, respiration slower

and deeper, the cardiac impulse stronger and more circumscribed, and apparently, at least, temporary decrease in the transverse cardiac dullness.

Massage and Swedish movements properly applied are useful aids in improving the circulation, the latter in the form of movements of resistance being of especial advantage owing to the feeble muscular movements and sedentary habits of senile patients.

Saline cathartics cautiously employed are especially useful in relieving the more or less constant gouty condition present after middle life; later they prove invaluable in removing dropsical accumulations.

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*THE VALUE OF ANTI-STREPTOCOCCIC  
SERUM IN THE TREATMENT OF  
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TICEMIA.*

J. I. WILLIAMS writes in the *British Medical Journal* of October 3, 1896, in regard to this most interesting therapeutic question. He has had six cases of his own in which he has used the serum, and has collected eight from literature. Of these fourteen cases of severe puerperal septicemia treated by anti-streptococcic serum, two ended fatally; eight were primiparous women varying in age from twenty-two to thirty years; one was a case of abortion, and one a multiparous woman with a rickety pelvis. In Vinay's cases (included in this list) no information is given as to age, character of labor, or number of pregnancies. Excluding these, we have left ten in which there is a definite record of the patient's state before and after the use of the serum. The labor was instrumental in six cases, lingering in one, and normal in two. In all, the placenta came away easily and completely. Information as to the integrity of the perineum is furnished in seven cases; it was torn but not sutured in four, torn and sutured in two, and uninjured in one. The sutured perineum in Case V healed by first intention, but in Gaulard's case it was curetted and resutured. In six cases the lochia were scanty, and in two suppressed. The reaction of the vaginal discharge was ascertained in three cases: once it was found acid, and twice alkaline. The writer's investigations into the reaction of the vaginal discharges in cases of puerperal septicemia during the past years seem to indicate that alkaline reaction most frequently accompanies septic intoxication—sapremia; and acid reaction, septic infection—septicemia. With

the former reaction the lochia were usually found free and fetid, and with the latter scanty or suppressed. In the ten cases referred to, symptoms of the disease set in from within a few hours of labor to the eighth day. The use of constitutional agents combined with local and instrumental treatment was tried in all the cases before the serum injections were resorted to, for a period varying from two to fifteen days. The earliest day after labor on which the serum was used was the fifth day, and the latest the nineteenth.

The serum was not injected in a single case without a previous thorough trial of the usual constitutional and local remedies. The state of the pelvic organs was ascertained in nine cases, and with two exceptions, where there was uterine tenderness, they were found to be normal. The cases were characterized by severe febrile symptoms, and in some there was diarrhea and vomiting. It must, of course, be admitted that puerperal infection may be independent of streptococci, but the conjunction of certain symptoms, rigors, high fever, and a rapid breaking up of the general condition, permit us to affirm the probability of infection due to streptococci. Certainty is only to be obtained by a bacteriological examination, such as was made in two cases, and proved beyond doubt that these two were cases of true streptococcic infection—puerperal streptomycolysis.

As to the general effect of the serum, Williams states that following each injection the previously hot, dry and inactive skin passed into a state of moisture and active perspiration; the parched lips and dry tongue became moistened; suppressed lochia and lactation reappeared; delirium, insomnia and restlessness passed off into a refreshing sleep, from which the patient awoke feeling better in body and clearer in mind. Headache and mental torpor were usually dispelled, but exceptionally the headache remained for hours, the patient otherwise feeling much relieved. The headache, which was described as "peculiar," was sometimes frontal and sometimes occipital.

In three cases no benefit resulted from the injections.

Vinay believes the injections to be more effective and more immediate in their action when they are made early and at the time of the evening when there is a spontaneous rise in the temperature. Local treatment, curettage, and antiseptic washings are not to be neglected.

In every case except three, the degree of temperature and the frequency of the pulse were reduced after each dose of serum—in from six to twenty-four hours. The temperature in Case I fell from  $104^{\circ}$  to  $102^{\circ}$  in six hours after ten cubic centimeters of the serum (Pasteur Institute) had been administered, but it rose to  $103^{\circ}$  eighteen hours later. A second dose, of twenty cubic centimeters, reduced it to normal in ten hours, and it remained so. In Case III the temperature followed an exceptional course: after a single dose of thirty-five cubic centimeters (Ruffer's serum) it fell from  $104.4^{\circ}$  to  $104^{\circ}$  in six hours; at the twelfth hour (midnight) it rose to  $105^{\circ}$ , but at the eighteenth hour it fell to  $102^{\circ}$ , and at the twenty-fourth hour to  $99.2^{\circ}$ , and remained under  $100^{\circ}$  from this time onwards. This was the only instance in which a rise was observed after an injection. In three cases the temperature fell to normal in twenty-four hours. The pulse-rate varied with the temperature.

Two of the cases proved fatal. The first received a daily injection of twenty cubic centimeters (British Institute) for three consecutive days, with no observed benefit; the patient died on the fourteenth day, the fever remaining high to the last. With regard to this case, it was probably one of streptococcus infection, and had a larger initial dose been administered a different result might perhaps have been obtained; but if it was a case of staphylococcus infection, of course no benefit could be expected. This shows the supreme importance of a bacteriological diagnosis. The latter case, however, stands in a different light. Here a bacteriological examination had been made, and the case undoubtedly was a true example of streptococcus infection—streptomycolysis. A dose of ten cubic centimeters of serum (Marmorek) was injected on the fourth, fifth, sixth, and seventh day after confinement, and by it the temperature was reduced to normal on the ninth day. On the evening of this day, however, the patient was seized with bilious vomiting and meteorism. The next day she was much worse, developed uncontrollable vomiting and became semi-comatose, and died on the eleventh day, the temperature remaining low to the end. The serum was effective in reducing the temperature, yet the patient died two days later during convalescence. Gaulard, after the post-mortem examination, attributed her death to the use of too much serum. The total amount injected was forty cubic centimeters (Marmorek), spread over

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In three cases no benefit resulted from the injections.

Vinay believes the injections to be more effective and more immediate in their action when they are made early and at the time of the evening when there is a spontaneous rise in the temperature. Local treatment, curettage, and antiseptic washings are not to be neglected.

In every case except three, the degree of temperature and the frequency of the pulse were reduced after each dose of serum—in from six to twenty-four hours. The temperature in Case I fell from  $104^{\circ}$  to  $102^{\circ}$  in six hours after ten cubic centimeters of the serum (Pasteur Institute) had been administered, but it rose to  $103^{\circ}$  eighteen hours later. A second dose, of twenty cubic centimeters, reduced it to normal in ten hours, and it remained so. In Case III the temperature followed an exceptional course: after a single dose of thirty-five cubic centimeters (Ruffer's serum) it fell from  $104.4^{\circ}$  to  $104^{\circ}$  in six hours; at the twelfth hour (midnight) it rose to  $105^{\circ}$ , but at the eighteenth hour it fell to  $102^{\circ}$ , and at the twenty-fourth hour to  $99.2^{\circ}$ , and remained under  $100^{\circ}$  from this time onwards. This was the only instance in which a rise was observed after an injection. In three cases the temperature fell to normal in twenty-four hours. The pulse-rate varied with the temperature.

Two of the cases proved fatal. The first received a daily injection of twenty cubic centimeters (British Institute) for three consecutive days, with no observed benefit; the patient died on the fourteenth day, the fever remaining high to the last. With regard to this case, it was probably one of streptococcus infection, and had a larger initial dose been administered a different result might perhaps have been obtained; but if it was a case of staphylococcus infection, of course no benefit could be expected. This shows the supreme importance of a bacteriological diagnosis. The latter case, however, stands in a different light. Here a bacteriological examination had been made, and the case undoubtedly was a true example of streptococcus infection—streptomycolosis. A dose of ten cubic centimeters of serum (Marmorek) was injected on the fourth, fifth, sixth, and seventh day after confinement, and by it the temperature was reduced to normal on the ninth day. On the evening of this day, however, the patient was seized with bilious vomiting and meteorism. The next day she was much worse, developed uncontrollable vomiting and became semi-comatose, and died on the eleventh day, the temperature remaining low to the end. The serum was effective in reducing the temperature, yet the patient died two days later during convalescence. Gaulard, after the post-mortem examination, attributed her death to the use of too much serum. The total amount injected was forty cubic centimeters (Marmorek), spread over

four days. In view of his own experience the writer cannot agree with Gaulard, as in Case IV he injected sixty cubic centimeters (British Institute) during three days, and Kennedy used eighty-five cubic centimeters in two days, both cases recovering. There may, of course, be a difference in the strength of the fluids used. This emphasizes the desirability of bacteriologists adopting a uniform system of standardizing their serum.

An erythematous rash appeared on the chest, abdomen, and extremities, in two cases. It was of a fleeting character, and disappeared in the course of a few days without calling for any treatment.

Patchy pneumonia of the base of each lung complicated Case II. The first and second injections of thirty cubic centimeters were made on the eighth and twelfth days respectively. The temperature fell after each. On the seventeenth day there were signs and symptoms of pneumonia. During this attack the temperature ran a fluctuating and exceptionally high course, being  $106^{\circ}$  on the twenty-first and  $108^{\circ}$  on the twenty-third day. The attending physician looked upon the serum with suspicion, and feared it was the cause of the pneumonia; it was supplied by Dr. Ruffer. Is it possible that the serum, through defective filtering or otherwise, contained living streptococci? Might a serum containing living germs, or free serum, give rise to patchy pneumonia in a puerperal patient with a decided phthisical family history, such as Case II was? Finkler regards the streptococcus as the primary cause in the pathogenesis of certain cases of croupous pneumonia. Weichselbaum describes a *Streptococcus pneumonia* which, according to Mosny, is identical with the *Streptococcus pyogenes*. Harbitz describes five cases of non-typically coursing cases of croupous pneumonia, in four of which he found the streptococcus in pure cultures. Bulloch states that it is a frequent associate of other specific organisms in lung disease.

The serum was administered by subcutaneous injection into the areolar tissue of the abdominal wall; to avoid septic troubles, it was deemed essential to purify the skin as well as the syringe. In the foregoing cases these precautions were carried out as follows: the skin was washed with Johnston's ethereal antiseptic solution of soap (P., D. & Co.'s), then for two minutes with perchloride-of-mercury lotion 1:1000, and finally dusted with boric-acid powder. The syringe used was Debove's, of the capacity of ten cubic

centimeters; it was taken to pieces and placed in a pie-dish, which was boiled in a clean saucepan for fifteen minutes at the patient's home. Ten cubic centimeters were injected into each puncture, three such punctures being made for a dose of thirty cubic centimeters. In no instance was there local trouble.

The question of a maximal dose beyond which it is unsafe to go has not yet been settled; nor, indeed, are supplies of serum derived from different sources, or from the same source at different times, guaranteed to be of uniform strength. In the interests of clinicians it is desirable that a uniform system of standardizing be adopted by bacteriologists, and then clinical observers will be better able to agree as to what the maximal and submaximal doses should be. At present the practitioner has to rely for guidance upon the instructions which accompany each supply, and these vary with their sources. The largest dose which the author injected was thirty-five cubic centimeters; Kennedy injected forty-five cubic centimeters; the serum used in each case was Ruffer's. Better results were found after a large than after a small initial dose. His experience encourages the use of a maximal initial dose, to be followed, if necessary, by smaller doses at intervals of twelve or twenty-four hours. The British Institute of Preventive Medicine fixes the initial dose at twenty cubic centimeters, followed by another of the same amount if the temperature has not fallen. Bulloch states that much larger doses can be given with safety: ten cubic centimeters of his serum injected into rabbits caused no bad symptoms.

What cases are suitable? Puerperal infection may be independent of streptococci. According to Bulloch, recent research shows that a puerperal fever may be set up by the gonococcus (Krönig), the *Bacillus coli communis* (Marmorek), the Talamon-Fraenkel coccus, and the staphylococcus. In the majority of instances, however, puerperal fever means infection of the genital canal, and ultimately of the whole system, with the *Streptococcus pyogenes*. There is produced a septicemia—using the term in the sense in which it was originally employed by Koch, namely, a condition of microbic blood-infection where the microbes multiply in the blood and cause a rapidly fatal disease. The microbe at work most commonly is the *Streptococcus pyogenes*, and the type of infection strepto-septicemia, or, in the language of the bacteriologist, strep-

to-mycosis. It is in this class of cases only that the antistreptococcic serum is of value; the serum is specific against the streptococcus only, and attempts to cure staphylo-septicemia or infection caused by any other germ will not be successful. The combination of symptoms found in cases of severe puerperal septicemia point to a streptococcus infection, but in the absence of a bacteriological examination one cannot be certain. The streptococcus infection is at first essentially a local disease; it is later that it becomes a blood-infection. Therefore local treatment, antiseptic douches and curettage cannot be dispensed with, but must be carried out in conjunction with the serum, which comes into play when the germs have passed into the general circulation, annulling their action and toxin, and obviating the organic degenerations which are beyond local control.

*THE ACTION OF HYDROBROMATE OF SCOPOLAMINE UPON THE IRIS AND CILIARY MUSCLE.*

In the *American Journal of the Medical Sciences* for September, 1896, OLIVER sets forth the results of his investigations into the mydriatic action of hydrobromate of scopolamine.

A single instillation of  $\frac{1}{4}$  grain produces mydriasis in eighteen minutes, and full ciliary paralysis in twenty-three minutes. In every instance the pupil is fully dilated. The total ciliary paralysis and the pupillary dilatation are maintained for twenty-four to thirty-six hours. Accurate observations made several times daily prove that the diameter of the pupil becomes normal again in about seventy-two hours, and the power of the ciliary muscle is re-established in about ninety-six hours.

During the course of experiments with the drug it was noticed:

At the beginning of a few of the examinations there was a slight sense of conjunctival astringency, which in a couple of instances amounted to a stinging sensation.

There were no appearances of constitutional disturbance; care, however, was taken in every instance to prevent the passage of any of the liquid into the lacrymal passages.

In no instance was any apparent increase of a choroidal disturbance produced by the employment of the drug.

The early and complete paralysis of the ciliary muscle that can be obtained by the single instillation of  $\frac{1}{4}$  grain of hydrobro-

mate of scopolamine, and the rapid and full return of the action of the muscle, render this drug in this amount the most efficient and the most valuable cycloplegic that can be used for the proper determination of the total amount of ametropia.

The comparatively rapid return of the pupil to normal width proves the drug to be less objectionable than those drugs which, by reason of necessarily greater strengths to afford proper cycloplegic work, give more permanent mydriasis.

The perfect freedom from injurious constitutional effects when the amount named is used renders the drug absolutely safe for employment in all cases in which total cycloplegia becomes necessary.

*CHLORATE OF SODIUM IN THE TREATMENT OF CANCER OF THE UTERUS.*

E. DUVRAC, in a thesis fully analyzed in *La Semaine Médicale* of July 15, 1896, describes a method first used by L. Boucher, of Rouen, as a palliative of uterine cancer, with good results. It consists in the internal administration of chlorate of sodium in the manner in which Brissaud employs that drug in the treatment of cancer of the stomach, combined with the local use of the same substance as a dressing at the neck of the uterus. Internally it is given as follows:

- ℞ Chlorate of sodium, 5 drachms;  
Syrup of orange flower, 8 drachms;  
Distilled water, 3 ounces.

Mix. Two to eight tablespoonfuls to be taken daily.

It is well to make the patient begin with two tablespoonfuls a day, and to increase the dose rapidly up to a total amount of 128 grains of chlorate of sodium in the twenty-four hours. For local application the following powder is used:

- ℞ Chlorate of sodium,  
Subnitrate of bismuth, of each, 2½ drachms;  
Iodoform, 1 drachm.

Mix.

A small quantity of this is applied on a tampon to the cervix. Strips six inches wide and two inches long of sterilized tarlatan, impregnated with 1 part of iodoform, 20 parts of chlorate of sodium, and 20 parts of glycerin, may also be used. These are squeezed out, then cut into pads about four inches in length, and tied round the middle with a silk thread, with which the tampon can be removed from the vagina; each of these pads contain about fifteen grains of

chlorate of sodium. If symptoms of iodiform poisoning occur, tampons of salolized cotton, steeped at the time of dressing in a twenty-per-cent. watery solution of chlorate of sodium, should be substituted for those described. Lastly, a vaginal injection of a quart of boiled water, holding in solution 150 grains of chlorate of sodium, should be given every day.

Under the influence of this treatment, metrorrhagia and fetid discharge diminish and almost completely disappear; the pain ceases, so that morphine injections, which were previously necessary, can be dispensed with; the puffiness of the cervix diminishes, the ulcers cicatrize, appetite and digestion are restored, and the general condition improves. The effect of the treatment, however, is purely palliative, for the state of things becomes as bad as before if the dressings are discontinued, and the disease goes on unchecked in the deep parts which are not reached by the chlorate of sodium. Nevertheless, the method gives great relief and prolongs life. Thus, in the first case treated in the way described by Boucher, in which inoperable cancer of the uterus, which had already invaded the pouch of Douglas, coexisted with carcinoma of the stomach, the patient was kept alive in a fairly comfortable condition for three years.—*British Medical Journal*, Oct. 31, 1896.

#### ENDO-VEINUS INJECTIONS OF ARTIFICIAL SERUM IN ACUTE PNEUMONIA.

BASSI (*Gazzetta Degli Osped.*, June 6, 1896) reports six cases of severe acute pneumonia treated after the method of Galvagni—that is, by endo-venous injections of a solution of chloride and bicarbonate of sodium. In each case the pneumonia was double and of a grave type; of the six cases, five recovered and one died, and at the necropsy double broncho-pneumonia, right lobar pneumonia, and acute nephritis, in addition to an old stenosis, were found. With regard to the other cases, the author believes the treatment was of material service. The best time to give the injections is about a day before the expected crisis, or when the pulse becomes intermittent, or, in fact, upon any grave alteration in the condition of the patient. A small preliminary bleeding is useful. Whether the treatment acts by preventing coagulation of the blood, by oxygenating (through the incision) the venous walls and reflexly acting on the circulation, or in some

less known manner, the author is unable to say, but from his clinical experience in its use he feels justified in strongly recommending it for further trial. In a foot-note he refers to two other cases in which it was tried by him with success.—*British Medical Journal*, July 18, 1896.

#### AN OINTMENT FOR HEMORRHOIDS.

*La Médecine Moderne* of November 4, 1896, states that MONIN has employed the following formula with advantage in the treatment of this condition:

- ℞ Camphorated lanolin, 2 ounces;
- Castor oil, 3 drachms;
- Precipitated chalk, 1½ drachms;
- Hydrobromate of cicutine, 30 grains.

#### THE MIXED TOXINS OF THE STREPTOCOCCUS OF ERYSIPELAS AND THE BACILLUS PRODIGIOSUS IN THE TREATMENT OF MALIGNANT TUMORS.

COLEY, of New York, who has done so much good work in this line, contributes a paper to the *American Journal of the Medical Sciences* for September, 1896, in which he reasserts the value of this mixture of toxins in the treatment of malignant tumors. In most cases of carcinoma (including epithelioma) the effect is slight; in sarcoma it is most marked, but varies with the different types, the spindle-celled form showing by far the greatest susceptibility. The toxins exert a systemic as well as a local influence, but should be used only in clearly inoperable cases, or after primary operation to prevent recurrence. The results will vary greatly with the strength of the preparation, the most virulent cultures giving the best results.

#### SUBLIMATE INJECTIONS IN PERNICIOUS ANEMIA.

PATERA (*Riforma Medica*, May 23, 1896) reports the case of a lady, aged thirty-three, seen by him in January, 1895, with a history of severe anemia, fever, vomiting, insomnia, and extreme debility of a year's duration, attributed to severe uterine hemorrhage in the early part of 1894. The usual remedies were tried, but with very little success. The red blood-corpuscles were very much diminished in number. There was no albuminuria and no hematuria. Some blood was vomited on one or two occasions. Temporary improvement followed the author's treatment,



but when next seen, in December, 1895, the patient reported herself no better. Daily injections of five milligrammes of sublimate were then given for the space of two months, with excellent results: the anemia disappeared, and the patient radically improved, put on flesh, lost her palpitation, giddiness and sense of fatigue, and felt well in every way. The author refers to another case of severe anemia successfully treated in the same manner. It raises the question whether pernicious anemia may not be due to some hitherto undiscovered germ which is killed by the germicidal action of the sublimate.—*British Medical Journal*, July 18, 1896.

#### POISONING BY CHLORATE OF POTASSIUM.

FELLER (*Med. Corr.-Bl.*, Stuttgart, bd. lxxvi, No. 22) relates that a nervous but otherwise healthy woman, suffering from heartburn, took, by mistake for bicarbonate of soda, a heaped teaspoonful of chlorate of potash, and again half an hour later the same quantity. She was soon seized with violent vomiting and severe abdominal pains, especially about the kidneys, followed by strangury, anuria, and cyanosis of the extremities. Her skin was cold, pulse almost imperceptible, heart's action irregular, respiration slow; but her intelligence was unaffected. Under artificial warmth and cardiac restoratives the pulse improved, and the next day she passed a small quantity of highly albuminous bloody urine after severe nephritic colic. She could retain nothing on her stomach, but was given nutrient enemata, and on the third day the urine, though still scanty and passed with pain, was less albuminous, but the heart's action remained irregular. On the eleventh day, against the doctor's order, she got out of bed, fell down insensible, and very soon expired. No necropsy was permitted.—*British Medical Journal*, Sept. 12, 1896.

#### HEMATOPORPHYRINURIA.

KAST and WEISS (*Berliner Klin. Woch.*, July 13, 1896) refer to researches into this subject, and especially to those of Stokvis. This writer concludes that in rabbits hematoporphyrinuria is readily produced by the administration of sulphonal; and that the cause lies in the extravasation of blood into the mucous membrane of the stomach and duodenum. Kast has repeated the experiments, in which neither a single lethal dose, nor yet repeated doses

to the point of poisoning, produced a trace of hematoporphyrinuria. In the urine of rabbits, however, a markedly dark brown color of urobilin was noted, and in a few cases a faintly red color simulating that of hematoporphyrin. On further examination this latter was proved not to be hematoporphyrin. The authors then refer to the extravasations of blood into the stomach and duodenum; these occurred in about twenty-five per cent. of their experiments. They have found these extravasations in animals not treated with sulphonal, and believe that very slight causes will produce them. There was no relation between the extravasations and the amount of color in the urine. The authors have never been able to obtain hematoporphyrin from blood and sulphonal, whatever process was adopted. They still maintain that sulphonal in medicinal doses is a harmless remedy. The red coloration noted in some twenty-five out of one hundred experiments on rabbits was undoubtedly due to some change in the blood, but that was only produced by large doses. In dogs no foreign coloring matter was noticed in experiments extending over long periods of time. Under certain pathological conditions, and especially in anemic women and in obstinate constipation, there exists a loose combination of the blood-pigment. If in such cases immoderate doses of sulphonal are given, hematoporphyrin may be excreted in very acid urine; if the sulphonal is still used, threatening symptoms supervene. The authors draw attention to the rarity of cases in which hematoporphyrinuria has been noted. These results are also borne out in the case of trional, in which even the so-called cumulative action does not exist.—*British Medical Journal*, Oct. 10, 1896.

#### COCAINE POISONING: MAGNAN'S SYMPTOM.

RYBAKOFF, at a meeting of the Neurological Society of Moscow (*Neurolog. Centralblatt*, August, 1896), insisted on the diagnostic value of the symptom of chronic cocaine poisoning described by Magnan. This is an hallucination of common sensation: the patient complains of feeling some foreign body under the skin. In some cases the foreign bodies felt were like grains of sand, in others slightly larger; generally they were described as more or less rounded, and gave rise to complaints of microbes, worms, crystals, etc., situated just under the skin. While other symptoms of chronic cocaine poisoning occur

also in alcoholism and with other poisons, Magnan's symptom seems to occur only with cocaine. It has therefore a real diagnostic value, especially in cases where the patient is unwilling to admit having used cocaine. Where cocaine is extensively used in surgery and dentistry, the appearance of Magnan's symptom is a valuable indication for the immediate cessation of the drug. Korsakoff reported a case in which a woman suffering from multiple neuritis complained of "worms in the skin." On inquiry it was found that vaginal tampons containing cocaine had been freely used. The omission of these was followed by amelioration of the symptom.

#### *A DISCUSSION ON THE TREATMENT OF CARDIAC FAILURE.*

At the recent meeting of the British Medical Association, September 19, 1896, GRAINGER STEWART remarked that in the treatment of heart disease, among all the agents at our disposal, probably every one will agree that the most important is rest. In hospital cases we often obtain by this means alone most satisfactory results. The change which it effects in the cardiac muscle is of itself sufficient to bring out the most striking improvement. The heart, damaged or overtaken, has been carrying on a labor to which it was becoming daily more unequal. The burden of extra work is removed from it, and thereby it recovers tone. Even in the case of a professional man, whose work is to a large extent mental and therefore cannot be estimated by the foot-pound as in the case of the laborer, rest from work is of the greatest importance. After hours of intense mental effort, the heart becomes exhausted and cardiac symptoms more pronounced. When such a patient gives up work for a time and rests in bed, or goes to the country, or goes abroad, as, for example, to Nauheim, this element of rest from effort must be recognized as very important.

Stewart has found, however, that it is the rest from manual work that tells most favorably, and that, good as rest is for all heart cases, it is much more effective in these than in any other; for by the time that a man who leads a comparatively easy life begins to exhibit the general symptoms of cardiac failure his cardiac muscle is, as a rule, so much deteriorated as to be less capable of a rally than that of the laboring man exhibiting corresponding symptoms.

Second in importance is perhaps the ele-

ment of hope. When a patient knows himself to be suffering from formidable cardiac disease, and daily feels the discomfort and miseries attendant upon his cardiac failure, he is apt to be gloomy and disheartened; and this damages the organ in a way that we cannot at present fully explain. If such a patient becomes persuaded that he may recover, and that good compensation may be established, he becomes more hopeful about himself, and his heart receives a corresponding benefit.

Next in order ranks diet. Some cardiac patients benefit by an increased allowance of nourishment, some by a diminution of the amount, and many by an alteration of its quality. Among hospital patients it is not uncommon to find that the diet is largely composed of bread and butter with tea, the latter being used too strong and otherwise badly prepared; little butchers' meat can be obtained, and that little is often badly cooked. When such a patient is put upon a good and sufficient nitrogenous diet, with an adequate supply of butchers' meat, corresponding benefit inevitably results. In many of our cardiac cases occurring in private practice the supply of butchers' meat and other nitrogenous material has been beyond the necessities of the organism, and the heart has been in consequence debilitated from the undue supplies of nutritive material. In such a case the reducing of the dietary to that which fits the normal requirements of the system is attended by striking benefit. Many cardiac patients take far too much liquid, especially with or soon after their meals. Such a habit interferes with digestion, and also tends to keep at a high level the volume of the blood, and thereby to render the circulation more difficult; but probably more important than either of these is the tendency to increased obesity, which must not only render the heart's work more arduous, but interferes with the nutrition of the cardiac muscle by increasing its load of fat and interfering with the nutrition of its muscular fibres. Many a cardiac patient begins to show improvement from the time that he diminishes the use of his beverages, and of soups and other liquids at meals, and approaches more or less closely to the dry diet which was so strongly recommended by Sir Andrew Clark and by Professor Oertel of Munich.

Along with diet it is necessary to consider the use of alcohol—that is, the question of its habitual consumption as an article of diet. Any excess, even habitual slight excess, is to be strongly deprecated in all cases of threat-

ening cardiac debility. Its use in any form which is unsuitable to the stomach, giving rise to dyspepsia and secondarily disturbing the heart's action, must, of course, be forbidden. But its employment in moderate doses is of great service in cases of cardiac debility, and especially in such debility as we have seen of late years following influenza or diphtheria or any other acute exhausting disease, as well as in the advancing cardiac weakness so common in later life. The best form of alcohol is in most cases whiskey, and the dose may vary from two drachms to two ounces, taken once or twice, sometimes even three times, in twenty-four hours; but the amount for habitual use should never exceed four ounces in that time. It should always be taken with food, and if apart from the ordinary meals, should be mixed with milk or, what is better still, milk with beaten up white of egg.

Patients vary considerably in regard to advantage or disadvantage from the use of tea, coffee, cocoa, and other non-alcoholic stimulants, and the condition of each patient must be watched in relation to their use; but of course any excess in the employment of any one of them is very apt to disturb the action of the heart. This is especially the case if they are taken strong and towards bedtime.

In this connection also the writer refers to the influence of tobacco. It is best to discontinue it altogether when any cardiac debility exists, and if it is to be employed at all, it must be in extremely moderate quantities and after food.

According to the writer's experience the most valuable cardiac tonic is digitalis. It is certainly capable of improving the heart's contraction, rendering the systole more firm and sustained. It frequently steadies the pulse, removing irregularities of rhythm and of strength, and rendering it slower as well as firmer. It leads to relief of dyspnea and other pulmonary symptoms, removes dropsical effusions by promoting diuresis, and similarly, although to a less marked extent, removes other results of backward pressure, and under its use the dilated heart diminishes in bulk and the organ returns more readily to its natural size, compensation being gradually established.

The mode of action of digitalis may now be regarded as fairly definitely settled. It influences mainly the muscular tissues, both striped and unstriped, although it may also owe some of its usefulness to minor effects exerted upon and through the vagus. Of all

the muscular tissues, it acts chiefly upon that of the heart, next upon the unstriped fibres of the arterioles and the alimentary tract, and least upon the skeletal muscles. Effects upon the last named could only become prominent if a fatal dose had been administered; indeed, they are scarcely ever so in men, although readily demonstrable in the frog. But the fibres of the alimentary tract often give token of disturbance by the vomiting and diarrhea which the remedy produces; we may then conclude that we are giving more than is needed for action upon the heart. As to the precise effect upon muscle fibres, Professor Schmiedeberg has shown that digitalis renders muscular elasticity more perfect, so that each fibre extends more completely, and increases contractility, so that in contraction each fibre returns more perfectly to its minimum length. In accordance with this the heart is found to expand more fully and to contract more perfectly, and so both diastole and systole are more deliberate, especially the former. Digitalis possesses a greater power of contracting the arterioles than any other medicine of the group to which it belongs.

Theoretically it seems reasonable to think that its power of contracting the arterioles must be attended with disadvantages, inasmuch as it necessarily throws greater work upon the ventricle. Stewart has never been able to trace clinically evidence that this is so. He has often given nitrites along with digitalis, with the view of combating such a tendency, especially in cases where the heart-failure was associated with cirrhotic Bright's disease or with sclerosis of minute vessels—and, he thinks, with good effect, although he admits that experiments on animals have failed to confirm the value of such a plan of treatment. A really important consideration is that of the gastro-intestinal disturbance, the nausea, the vomiting, the diarrhea, which are not infrequently produced. This disturbance may be obviated, as we all know, by giving the digitalis in various forms and in various combinations; but, even with these precautions, we are occasionally obliged to abandon the remedy altogether. Our experience also teaches us that digitalis sometimes fails to rouse the heart to more vigorous action, and that its effects cannot be very rapidly brought about. A day or two generally elapses before we see the distinct effect; but, on the whole, it is the most reliable drug of the series, so far as Stewart's experience goes.

Next to digitalis he places strophanthus, for our knowledge of which we are almost entirely indebted to Professor Fraser, from whose researches it appears that it acts directly upon the muscular tissue of the heart, increasing contraction. He has found that when a solution containing one part of a dry alcoholic extract in 10,000,000 parts of liquid is perfused through the living heart of a frog, the heart's action is arrested in extreme systolic contraction in about fifty minutes; and when the solution is one part of extract in 5,000,000 of liquid, such extreme contraction of the cardiac muscle is produced that relaxation only occurs with post-mortem decomposition. But though acting so powerfully and with such rapidity upon the cardiac muscle, it has, according to Professor Fraser, little influence upon the muscular fibres of the arterioles. Other observers, especially Professor Kobert of Dorpat, and Dr. Thomson—who, although bearing an English name, practices in Russia—maintain that it does contract the arterioles of mammals, although not those of frogs. It would thus appear, theoretically, that strophanthus ought to give better results than digitalis; but this is not the writer's experience of it clinically, for its results have not in his hands been equal to those of digitalis. He has sometimes thought this might be due to the supply of strophanthus not being of so good a quality as that of digitalis; and that Professor Fraser's results with his own drug, so greatly surpassing the results which Dr. Balfour and the author were able to get, was due to the fact that he worked with a preparation from his own laboratory, which may reasonably be supposed to have been of better quality than that found in the ordinary market. But there is one consideration which makes the author doubt whether this is the whole explanation—namely, that unquestionably strophanthus is of greater service in an emergency, and helps the heart more rapidly than digitalis can; and this he found with the ordinary drug as sold in the market. This is a point of immense importance, which must always be kept in view in cases of urgently threatening cardiac failure.

Although on the whole inferior to digitalis except in this one particular, the results of strophanthus have in the writer's hands corresponded essentially to those produced by digitalis; and often when digitalis has failed to suit the stomach, he has with good result fallen back upon strophanthus. He points out, however, that in a certain proportion of

cases strophanthus disturbs the stomach more than digitalis does, and that he has sometimes had to discontinue the medicine for this cause.

With the other direct cardiac tonics he has had less experience, although caffeine has sometimes proved very serviceable by itself and in association with other drugs. Its action is, however, as was pointed out by the late Dr. Brackenridge, from his clinical observations, rather a direct one on the kidney than one upon the heart—an observation which has been confirmed by Dr. Gram of Copenhagen, and by Professor Schroeder of Heidelberg, who demonstrated conclusively, by experiment and otherwise, that caffeine, theobromine, and its more soluble preparation diuretin (which is a double salicylate of theobromine and sodium), stimulate the cells of the kidney and increase the urine, and only in a minor degree act upon the heart. At the same time, he warns against diuretin—that in his hands it has not proved very helpful in cardiac cases. The author has found nux vomica and strychnine of special service in cases where the other remedies are not well borne; and in all instances they may be given as adjuvants with much advantage. It appears to be demonstrated that they act in a marked way on the arterioles, producing contraction, and that the action is not directly upon the muscle, but upon the vaso-motor centre in the medulla, for it disappears when the cord is cut across in the upper cervical region. That they affect the heart also is proved by the fact that in cases of poisoning this organ may cease to beat and become fixed in a state of spasm—this through the vagus and cardiac ganglia.

The next group of cardiac remedies is that which acts by dilating the arterioles. Their effects, so far as we know, are purely mechanical; for dilatation of arterioles implies easier circulation, and less work for the cardiac muscles. Among these, for rapid action the foremost place is taken by nitrite of amyl, and its value in this respect has been universally recognized since the days when Dr. Lauder Brunton, as resident physician in the Royal Infirmary, Edinburgh, demonstrated its action in cases of angina pectoris. But for prolonged effect the author gives a foremost place to sodium nitrite and nitroglycerin: both of these have produced in his hands the best results, more especially in cases of sclerosis of blood-vessels, and of diseases of the aorta and of the aortic valves.

One other remedy requires to be mentioned, although its mode of action, and even its precise effects, are much more difficult to gauge—iodide of potassium. So far as the writer's observations go, this drug in ordinary doses has no marked effect upon the size or the action of the heart. It may be held as proved that in ordinary doses it neither depresses the heart nor dilates the vessels; and yet in certain cases, and particularly those of chronic inflammation of the muscular substance of the heart, it appears to aid the action of cardiac tonics. Most probably it tells upon coexisting syphilitic or other lesions, and thus helps to bring about a favorable result.

We must now turn to the remedies which help the heart by influencing the secondary results of cardiac failure; and among these we have to speak first of the means of dealing with dropsy.

Measures directed to the improvement of the cardiac condition are commonly of service in regard to dropsy also. The use of rest, of dry diet, of passive exercise, and of cardiac tonics, often suffices to relieve the symptom. But, on the other hand, special diuretics are frequently required; and if these fail, it is necessary to relieve by mechanical means. The safest and easiest mode of doing this is by tapping the pleura. In a large proportion of cases of cardiac failure, hydrothorax occurs, and its amount is often out of all proportion to the dropsy elsewhere. Its presence, of course, greatly aggravates dyspnea and adds to the embarrassment of the heart's action; and the author has found that the removal of even a small quantity, say twelve or fourteen ounces, from a pleura, gives relief to breathing far beyond what one would naturally expect. It of course follows that the removal of a larger amount produces proportionally greater results. But not only is tapping of service by directly relieving the lungs and the heart; it also favors the efforts of nature to get rid of dropsy elsewhere, according to the law that when a certain amount of relief is afforded mechanically the emunctories have a better chance of dealing with the remainder. Twenty years ago the writer used to look with some dread upon tapping for mere hydrothorax, but now for many years the practice has been so common in his wards that every house physician has been accustomed to minutely examine and if necessary to explore the pleura in every case of cardiac dropsy, and to draw off whatever fluid he could. Often a very limited area of

dullness corresponds to a very considerable amount of fluid, as if the arch of the diaphragm had become depressed. Ascites often requires tapping, and the operation is followed by very good results, although it is both somewhat more formidable and less satisfactory than the thoracic operation.

With regard to draining the skin of the legs and of the scrotum by means of Southey's tubes, the author never has recourse to this method unless he feels himself absolutely compelled to employ it. The risk of unhealthy action among the devitalized tissues, even when the strictest antiseptic precautions are taken, is very considerable. And yet he has often known life to be prolonged by successful drainage by Southey's method.

Among subsidiary helps in the treatment of cardiac failure is that which is directed to secondary changes, functional or structural, in other organs.

The alimentary system shows sometimes an extraordinary tendency to gastric catarrh, constipation, or deficient absorption from the intestinal tract. While these are all relieved in a measure by treatment directed to the heart itself, direct treatment by stomachics, aperients, and other medicines, sometimes also by abdominal massage, proves very important.

The passive congestion of liver may be helped by the use of aperients, which relieve the portal system and bile-ducts, or by counter-irritation externally, especially in the form of the acid compress, and the internal administration of mineral acids with taraxacum.

The hemo-portal system frequently requires very special attention, not in respect of its glands, but of the deterioration of the blood. A diminution of red corpuscles is both a consequence and a further cause of cardiac failure; and the ordinary remedies, iron and arsenic, with their combinations, are often of service in these conditions. In every cardiac case it is desirable to know the proportion of hemoglobin and corpuscles, and whenever they tend to diminish we should try to bring them up by the usual remedies.

With regard to the respiratory system, besides attention to the conditions of the pleura we must in all cases of cardiac failure watch the lungs, and especially the bases posteriorly, for indications of edema. Whenever this occurs we should endeavor by rubefacients, and sometimes by stronger measures, to overcome the tendency, and should of course treat, in the usual way, any bronchitis

that may appear; for both edema and bronchitis tend greatly to increase the cardiac embarrassment. Paroxysms of dyspnea are very apt to occur during the night, the patient being suddenly seized toward early morning with great distress. This may be associated with edema of the lungs, but is not always to be accounted for in that way—it must be referred to the condition of the heart-muscle itself. The best remedies are alcohol, especially in the form of spirits, with hot water or with milk or soup; ether, particularly in the form of Hoffmann's anodyne; or in extreme cases subcutaneous injection of ether, strophanthus, or strychnine; counter-irritation over the heart and lungs, and cupping, are also very useful. In cases where there is sudden increase of dyspnea with lividity, whether due to acute inflammation in the respiratory tract or mainly to sudden cardiac failure, there is need for blood-letting; and he has often seen life saved by the prompt use of this remedy.

With regard to the integumentary system, the most important points have already been mentioned when speaking of dropsy, but massage of the limbs and bandaging from the toes upwards with a view of affording mechanical support are not to be overlooked when dropsy is threatening.

As to the urinary system, we must constantly watch for the appearance of albuminuria due to backward pressure, and when it appears should use non-irritating diuretics, push the cardiac treatment, and counter-irritate over the kidneys. Essentially the same rules apply when actual inflammatory change in the kidney is superadded.

The nervous system frequently requires close attention, especially for the relief of sleeplessness and pain. For the former, much benefit is often to be got from the administration of a few ounces of strong beef-tea, with or without a little brandy or whiskey, at bedtime. As to the medicinal hypnotics, the main point is to avoid remedies which depress the heart, such as chloral, and large doses of bromide of potassium. Opium, morphine, paraldehyde, sulphonal and trional have given the writer the best results, and he often employs chlorodyne—he has known a cardiac case have a dose of it every night for a year with much benefit and no unfavorable result. For the relief of cardiac pain the nitrites are most serviceable, but opiates also, and sometimes sedative applications painted over the skin, are followed by good results.

Whenever cardiac failure exists, the treat-

ment should be essentially the same, no matter what the lesion may be. He has never seen reason to condemn the use of digitalis in aortic cases, and the only conditions in which he is inclined to urge great caution with the use of cardiac tonics are those in which there is reason to believe the inflammatory process in the valves is still advancing, or there are inflammatory or degenerative changes in the fibres of the heart, whether dependent upon disease of the coronary arteries or not. In the advancing inflammatory conditions he prefers to avoid tonics and exercise entirely, to insist upon absolute rest, and to prescribe arsenic and the iodide of potassium, often with carbonate of ammonia, while in the degenerative changes in the heart he employs tonics and exercises with the most scrupulous watchfulness.—*British Medical Journal*, Sept. 19, 1896.

#### EXTENSIVE BREAST AMPUTATION.

TANSINI (*International Medical Journal*, November, 1896) holds that in the attempt thoroughly to remove all lymphatic glands which may possibly become involved, secondary to cancer of the breast, recurrence in the skin has been overlooked. He calls attention to the frequency of recurrence of this sort in the form of isolated nodules in or near the scar. In order to avoid such recurrence, he removes the overlying skin of the whole breast, and a strip about four inches wide from the breast into the axilla. To cover the defect, a flap is dissected from the back, with its pedicle near the axilla, and stitched in position over the wound.

#### SOME REFLECTIONS ON APPENDICITIS.

On the ground of an extensive experience LE DENTU concludes an instructive paper, read before the Paris Academy of Medicine, as follows:

While it is true that a large number of appendicitis cases should be treated by surgical means, there are some in which a definite temporary cure can be secured by internal medication. These comprise cases of threatening peritonitis or peritoneal septicemia.

There are some appendicitis cases which go on regularly to the formation of an abscess. Sometimes these are characterized by a frank inflammatory reaction; sometimes the phlegmasia is well localized to the cecal region; sometimes the malady runs a natural course without signs of impending danger,

and here it may be of advantage to allow the abscess to accumulate and become circumscribed before resorting to interference. The formation of the pus-collection is revealed by local signs (localized pain, a tumor of the form of a breastplate, or globular fluctuation) and general signs (increase of fever, more or less restlessness, followed quite often by a remission coincident with the arrest of pus-formation). In these patients early intervention is not without risk. It can result in a dispersion of the agents of infection confined to a limited area, and this result is more to be feared than the appearance of pus in the first few hours.

Surgical intervention becomes opportune and necessary when it is believed, from the signs given above, that a focus has formed. The operation varies in technique according to the situation of this focus. If situated directly beneath the abdominal wall, a simple incision of all the layers is sufficient. It is necessary to guard against the rupture of adhesions (except in cases where one has reason to suspect the existence of multiple foci), and the appendix should be left in place if it is not floating or easily detached, the operator confining himself to suturing any perforation that may be discovered. Tamponade of the abscess cavity and partial suture of the abdominal wall complete the operation. If at a later period an eventration should result, this will furnish an opportunity for searching for the appendix, when it will be possible to determine whether all or nearly all the adhesions have disappeared, whether the intestine has again become entirely free, and to adopt the proper treatment.

If the focus is deeply situated, the operation is more delicate and also more dangerous. To penetrate down to it, it is necessary to break up some adhesions, taking all known precautions for preventing soiling of the neighboring parts; in a word, to guard in every way against operative infection. The diseased parts should be isolated by a tampon. But in spite of the best selected measures, it may happen that the peritonitis will become general and death result. If performed early in the cases characterized by a frank inflammatory reaction, the operation cannot be considered as absolutely inoffensive, while if delayed until the time when an abscess has formed it is not entirely secure, for the above reasons. Among the cases which go on to pus-formation, there are, therefore, those which are benign on ac-

count of the anterior situation of the abscess, and those which are dangerous on account of its posterior or deeper situation. In the latter no regret need be felt for not having interfered early, since the initial symptoms are often not menacing.

In the following conditions surgical interference should be resorted to as early as possible:

(a) When the patient presents at the outset the symptoms of a general peritonitis, or when in the course of an appendicitis the signs of extension to the peritoneum manifest themselves. These cases should not be confounded with cases of simple tympanites, accompanied with a certain amount of tenderness at a distance, indicative only of peritonism or peritoneal irritation, without septic peritonitis, properly speaking.

(b) When depression manifests itself under one of the following aspects: absence of spontaneous pains, temperature normal or a little below, with a frequent and small pulse; diminished secretion of urine; abdomen not distended, but retracted by contraction; facies shrunk and sometimes betraying signs of suffering, color more or less dusky, bluish color of the extremities, especially of the nails; voice feeble; respiration a little accelerated, without being sighing.

It is always risky to abstain from operative interference in cases in which there is a recurrence of symptoms. Inasmuch as operations during the intervals between the crises give excellent results, the fundamental treatment of appendicitis should be to prevent these subsequent attacks. If one is not forced to operate by the recurrence of an attack, it is best, according to Roux, to wait five or six weeks, since at that time the adhesions formed by exudates have in general disappeared, the operation becomes extremely simple, there is every assurance of success, and the patient is once for all freed of a menacing danger.—*International Journal of Surgery*, September, 1896.

#### *PUNCTURE OF THE LATERAL VENTRICLES.*

At a meeting of the Medical Society of Heidelberg, Professor VON BECK presented three cases of cerebral affections attended with increased cerebral pressure, in which he had successfully employed puncture of the ventricles. On the ground of his experience he formulates the following conclusions:

1. In localized lesions of the brain with

symptoms of cerebral pressure, it is advisable, if possible, to effect a radical removal of the primary disease; as for example, in hematomata of the dura resulting from rupture of the middle meningeal artery, by evacuation of the blood, and in cerebral abscesses by extirpation.

2. In focal lesions (cerebral abscess and cerebral tumor) whose site cannot be localized on account of the absence of symptoms, or which are inaccessible to surgical treatment, and go on to the formation of chronic hydrocephalus internus, as well as in diffuse affections of the brain with rapid and marked exudation of cerebro-spinal fluid into the cerebral ventricles, it is necessary to remove the pathological product which produces the severe disturbances and thus relieve the compression of the brain.

3. This relief of pressure is secured by evacuation of the accumulated cerebro-spinal fluid by puncture of the lateral ventricles.

4. The preliminary trephining should be performed in the region of the suspected site of the primary lesion, and, if possible, by the osteoplastic method, in order to gain extensive view of the interior of the skull, and to leave behind as small an osseous defect as possible. At the margins of the bone-flap, in the vicinity of the place of cerebral puncture, a small perforation is made extending through the scalp, for the purpose of facilitating any subsequent punctures of the brain.

5. The ventricular puncture is practiced at a point of the brain superficies as free from vascular supply as possible and not comprising any cerebral centres: in the frontal region, between the second and third frontal convolutions, three centimeters above the supra-orbital margin; two centimeters laterally from the median line, directly backward to a depth of three centimeters; in the parietal region, three centimeters in front of the central convolution, two and a half centimeters laterally from the median line, outward and backward to a depth of four to five centimeters; in the temporal region, transversely through the temporal lobe, between the first and second temporal convolutions, two and a half centimeters above the base of the mastoid process, to a depth of three to four centimeters; in the occipital region, four centimeters above the external protuberance, three centimeters laterally from the median line, to a depth of three centimeters in an anterior direction. The aspirator needle should be of the size of a straw, having an attachment seven to eight centimeters long,

and connected with a syringe holding ten to twenty cubic centimeters.

6. Puncture of the ventricles, repeated on recurrence of the symptoms of cerebral pressure, is to be preferred to drainage of the ventricles, because the latter is attended with more risk of infection of the brain.

7. Ventricular puncture is far superior to lumbar puncture as recommended by Quincke, since by means of it it is possible to evacuate the chief site of accumulation of the pathologically increased cerebro-spinal fluid, and, unlike lumbar puncture, it does not remove fluid from the spinal canal alone in those cases where the communication between the fourth ventricle and the spinal canal is obliterated by tumors in the posterior portion of the cranial cavity or inflammatory lesions. By simply emptying the spinal canal of cerebro-spinal fluid, an arterial fluxion is induced which is transmitted to the brain and, in connection with the existing serous stasis, produces an increased transudation, and, in the absence of compensatory provisions for an efflux of the cerebro-spinal fluid, may increase the dropsy of the ventricles and rapidly lead to interference with the vital centres of the brain.

8. By means of ventricular puncture the dangerous pressure effects are at once removed, and, in cases of cerebral tumors, punctures repeated at certain intervals, whenever there is recurrence of the pressure phenomena, may materially ameliorate the distressing subjective disturbances, and prolong life. In cases of inflammatory hydrops of the ventricle, the puncture may even lead to a cure by establishing normal circulatory conditions and by inducing a retrogression of the inflammatory process.—*International Journal of Surgery*, September, 1896.

#### ISOLATED FRACTURES OF THE SACRUM.

These fractures are so infrequent and their literature so meagre that we may be pardoned for publishing a rather extensive synopsis of a lecture by Dr. A. CHIPAULT, chief of the surgical clinic at the Hospital la Salpêtrière in Paris.

Gaudier, in discussing the pathology of this class of fractures, describes two varieties: *First*, where the line of separation passes through the fourth foramina posteriorly and the third anteriorly, the fractured surface being quite oblique. This variety generally results from a blow or a fall on an ankylosed coccyx or on the lower part of



the sacrum. As a rule, the lower fragment is much displaced forward and upward, carrying with it the nerve-roots. *Second*, where the line of fracture is situated posteriorly on a level with the third foramina, extending on both sides up to the second foramina, then describing a curve and terminating in the sacro-iliac articulations. This variety is generally the result of a direct blow, such as the kick of a horse. The displacement is not so great, nor are the disturbances of the nerve-roots so pronounced, as in the first variety.

In the first form (inferior fracture) the lower border of the upper fragment is prominent; below it is felt a transverse depression somewhat concealed by the swelling of the soft parts. Further down the finger encounters the lower fragment. Crepitus can be easily detected. The anus is usually pushed upward and backward. Sometimes a large hematoma is formed, pushing the rectum forward, the blood subsequently invading the dependent parts around the anus. The finger introduced into the rectum will feel the lower fragment, and may be able to reduce it. In the superior fracture (second variety) the physical signs are not so well marked, the depression is not so great, nor is the finger able to reach the lesion so easily; as a rule, the traumatism is more severe, and the soft parts are much bruised or crushed, lacerations being frequently encountered.

In studying the literature of this subject, we find that the descriptions of the functional symptoms are, as a rule, very incomplete. Dufour gives us a graphic picture of these symptoms in one of his cases. The patient was a man forty-four years of age, who had fallen on the sacrum. He lost consciousness for a short time, experienced agonizing pains during three days, and when admitted to the hospital was found to be suffering from complete retention of urine and loss of sensation in the urethra. At the end of six weeks he was able to walk a short distance. Muscular strength was well preserved in the limbs, although the left calf had lost some of its rotundity. The patellar reflex was normal on the right side, decreased on the left, the tendo Achillis being in the same condition; there was no foot clonus. The sphincter ani had lost its contractility and was almost insensitive. There was also marked loss of sensation in the urethra, with slight incontinence of urine. The penis and scrotum were anesthetic, the anesthesia also affecting the internal and posterior regions of the left thigh.

Hammond, in his report of a case, mentions paralysis of the lower extremities, distention of the bladder, obstinate constipation, anesthesia of the vagina, sensation over the thighs almost normal, the right leg completely anesthetic, sensation diminished in the left leg. Tuffier furnishes a more complete description of a case observed by himself: The patient, a woman, thirty four years of age, had fallen from a considerable height. She exhibited paralysis and anesthesia of both legs, incontinence of urine, and constipation. Later she developed painful spasms of the legs and muscular atrophy. Four years later she became pregnant and gave birth to a living child. At times she suffered from severe pains and suppurating ulcers, principally over the right foot. Rectal and vaginal palpation revealed the existence of an unreduced fracture, with greater displacement on the right side. Her walk was difficult and feeble, knees weak, sensation lacking over posterior internal surfaces of thighs and legs.

The following is a *résumé* of a case reported by Church: The patient, a boy, nineteen years old, had fallen from a height of thirty-six feet. When examined, a large ecchymosis was discovered over the sacrum; the legs were paralyzed and anesthetic; there was constipation and retention of urine. For several weeks the patient suffered from painful crises in the legs, and then improved slowly. At the end of two years his condition was as follows: Standing difficult, with feet widely apart; constant oscillation while walking, with rotation of femurs; complete loss of sensation over buttocks, genitals, feet, and posterior surfaces of thighs and legs; pronounced atrophy of the glutei maximi; plantar reflexes abolished, patellar reflexes decreased.

Another case is reported by Chipault himself. The patient was a man, fifty-two years of age, who had sustained a fall from the fourth story of a building. After the accident he lost all motor power in his legs below the hips; complete retention of urine and constipation existed. Sensation was not tested. He improved very slowly, and after a time was able to walk with the aid of canes. When examined by Chipault after the lapse of fourteen years, he presented the following condition: Consolidation of the sacral fragments in a false position; incontinence of urine and feces; complete anesthesia of rectum and urethra.

The treatment of sacral fractures varies according to the complications. If not complicated with motor or sensory disturbances,

the surgeon should try to reduce the fracture by means of the finger cautiously introduced into the rectum; in recent fractures this is quite practicable; no operation is required. If there are symptoms of motor paralysis or loss of sensation, surgical intervention is imperative. If reduction by way of the rectum is found impossible, or the fracture does not remain reduced, an incision should be made and the apophysis united by sutures. Gaudier successfully operated in his case by making a crucial incision over the seat of the fracture and passing two silver wires through the fragments, while an assistant retained the latter in position with the finger in the rectum.

If the fragments are so impacted that the fracture cannot be reduced, it is best to perform a laminectomy in order to free the nerve-roots of all pressure. When the fracture is of long standing, reduction is no longer possible; but if not too old, improvement can yet be obtained by laminectomy, the cauda equina being carefully freed from cicatricial tissue. This was tried by Church in his case, which was complicated with a fistula. After the operation the fistula closed, and sensation returned to the legs, thighs, and anus, while the paralysis of the left leg almost disappeared. The favorable results derived from operative intervention in this case demonstrate that marked improvement can be frequently effected in this class of fractures even when the injury is of months' and years' duration.—*International Journal of Surgery*, September, 1896.

#### INJURIES OF BONES INTO JOINT CAVITIES.

STEWART L. McCURDY (*International Journal of Surgery*, September, 1896) says that compound fractures of bone into the joint cavities, or compound dislocations, if given thorough treatment at the time of the accident, are almost as promising as simple fractures into joints. In some cases, indeed, it is an advantage to have the joint open, so that the serum in abnormal quantities, blood-clots, fragments of bone, and injured cartilages, as in the knee, may be removed.

In the treatment of fractured patella it is now the practice to remove the synovia between the fragments by aspiration, or to make an opening below the patella to allow the fluid to escape.

Compound dislocations and compound fractures into joints, if they are treated with-

out suppuration, generally recover with functionally useful joints. Suppuration following such injuries, on the other hand, destroys the synovial membrane, and limitation of motion must be expected. Some cases recover with true ankylosis or bony union, and others recover with firm fibrinous or false ankylosis. The latter class of cases can generally be improved by passive motion.

Passive motion should not be instituted until all inflammatory symptoms have subsided and sufficient time has elapsed to insure firm bony union.

At the last meeting of the American Orthopedic Association, Dr. ANSEL G. COOK, of Hartford, Conn., discusses this subject at length, and summarizes by saying:

1. Bony or serious fibrous ankylosis is the result of injury and subsequent inflammation, and not of immobilization.

2. Early passive motion only disarranges the fragments of bone, thereby increasing the production of callus; irritates the injured ligaments; and, by increasing the inflammation, tends to produce the ankylosis it is thought to prevent.

3. Immobilization is useful only when active inflammation is present or until the ruptured ligaments or broken bones have thoroughly united.

4. The logical treatment of a fracture into a joint, therefore, should be rest and local applications to reduce inflammation; reduction of the fracture as early as possible, then immobilization until the bones and ligaments are united (from three to eight weeks or more, according to circumstances).

5. Passive motion, massage and use until the tissues become normal, or, if massage fails, complete rupture of all adhesions under an anesthetic, are indicated. The factors which will ultimately determine ankylosis are: the nature of the original injury, the character and duration of the subsequent inflammation, the destruction of bone and cartilage, cicatricial contractions of the soft tissues around the joint, and the age and condition of the patient.

*Case 1.*—C. W.; fracture of olecranon; seen two days after injury, the arm having meantime been dressed at an angle of 45°; it was at once dressed in complete extension, and kept there for seven weeks, when the splint was removed, and in another month the arm was perfect. Patient returned to his former occupation as locomotive engineer.

*Case 2.*—J. H. P. fell from a moving train and received a fracture of the olecranon,

quite similar to the preceding case. The physician who gave temporary relief dressed the arm at a right angle. Cook dressed it in complete extension and kept it there for six weeks, when the dressings were removed, and in ten weeks the patient returned to his former occupation as railway conductor, with a perfect arm.

The common practice of the average practitioner, in fractures into the elbow-joint, of applying dressings with the arm in a position of flexion, is a great mistake. Allis made a masterly advance when he advocated complete extension for the treatment of all such cases. Extensive injuries into joints may recover, with fair usefulness.

*Case 3.*—J. W., besides receiving two scalp wounds seven or eight inches long, sustained a fracture of the left humerus at two points and a compound fracture of the head of the radius, with about half of the articular surface of the bone detached. He also had a fracture of the ulna of the same arm, and a fracture of the right fibula. An occasional dressing was made of the various wounds. The arm was dressed in extension, and was kept in that position for about six weeks. Union of all these numerous fractures was prompt, and the patient returned to the coal mine in six months as a full hand.

*Case 4.*—G. L. G. had his right foot caught under a large stone as it was being lowered by a derrick. The weight was received on the outside of the foot gradually, and another stone near by held the leg almost perpendicular. When the member was examined, a complete compound dislocation between the astragalus and os calcis was found. The foot was turned out at a right-angle with the leg, the astragalus protruding completely through the wound.

Amputation is usually advised in such cases, but in this case it was thought best to make an effort at reduction, and if it should then be found that the blood supply was not entirely destroyed, an effort would be made to save the foot. After washing sand, etc., from the astragalus, and as near as possible securing antiseptis, reduction of the dislocation was accomplished. It was quite a task to make reduction, and it was only accomplished by using a very heavy bone-elevator as a sort of pinch-bar, over the astragalus and under the os calcis, thus throwing the margins of these bones free. After a long siege the wound was entirely healed; the ankle was ankylosed, but otherwise the foot is quite useful, and locomotion is not ungraceful.

*Case 5.*—J. L., aged twenty-four, a brakeman, suffered a compound dislocation of the second joint of the left middle finger, the joint surface being plainly visible. This wound was closed under antiseptic precautions, and healed promptly without infection. In two months motion was perfect.

*Case 6.*—M. B., aged fifty, was walking along the railroad, when a train backed up and knocked him down between the rails, the entire train passing over him. The arm being flexed, the elbow was caught under a wheel and the entire joint crushed, except the head of the radius. The case was seen a few hours later in consultation with Dr. Grove. As the circulation appeared good, it was decided to remove the detached pieces of bone, trim up the lower end of the humerus and upper end of the ulna, and drain and close the wound. The injury occurred on Monday. On Friday the drainage tube was removed; and on Saturday, the eighth day, the next dressing was made, and this was renewed once a week. The skin that was destroyed by the wheel came off as a dry slough. The wound healed promptly, without subsequent complication. One year after the accident the arm is almost as useful as before the bones were removed. With the arm hanging down, the forearm can be fixed to a right-angle. He is now working at his former occupation as a trackman, and suffers little inconvenience.

#### *A METHOD OF CLOSING THE OPENING AFTER GASTROSTOMY AND ENTEROSTOMY.*

C. J. BOND, in the *British Medical Journal* of July 4, 1896, presents the following technique suggested by reading Mr. Harrison Cripps's description of a method of temporarily closing gastrostomy and enterostomy wounds, which he found useful in permanently closing the same wounds. In April, 1894, in a case of pyloric stenosis, after failure of pyloroplasty he established a communication with the stomach in order to dilate with bougies the strictured pylorus. Later on it was necessary to close this somewhat large opening. An oval disk of sheet india-rubber, larger than the fistula, was coiled up and inserted in the way Mr. Cripps directs; before passing it into the stomach it was pierced by a double row of plated wire sutures, six or eight in number, each suture going completely through the disk twice, and forming a loop on the back. The free ends

were loosely held while the plate was let into the stomach, and after unfolding it was drawn up flat against the mucous membrane by the double row of sutures. The edges of the fistula were freshened, care being taken to cut away the mucous membrane. This can be done best by drawing it out and cutting it off all round, allowing it to shrink back again inside. Then, by means of a handled needle with a suitable curve, each wire was threaded separately and brought through the coats of the stomach and the abdominal wall from within outwards, close to the edge of the opening. In this way one row of sutures passes through one side of the opening, and the other row through the other; the edges can then be brought together and the sutures tied externally; the opening is thus effectually closed against leakage by what is practically a button suture, with the button within the cavity. Each suture can be cut and drawn out whole, and the plate allowed to drop into the stomach or intestinal canal. In the case referred to, the acid gastric juice dissolved the portions of wire in contact with the india rubber, which was thus liberated and vomited a fortnight later.

#### WARTY CORNS ON THE SOLES OF THE FEET.

C. S. EVANS (*British Medical Journal*, July 18, 1896) reports the following case: H. G., aged fifteen, came under treatment on November 9, 1895, lame in both feet and unable to walk without pain, owing to a crop of sixteen hard and very tender spots on one foot and six on the other. The largest and most tender in each foot was evidently a large wart, flattened by pressure and surrounded by a hard horny ring; the others looked like corns.

On cutting parallel to the surface, each showed from one to about twenty hypertrophied papillæ in section. After three weeks of daily applications, after a hot bath, of a saturated solution of caustic potash at first, afterwards of fuming nitric acid, followed by a coating of salicylic collodion, all the horny epidermis was peeled off or cut off, and two-thirds of the warts had disappeared. Another week of caustic applications at two or three days' intervals, by which some of the warts were destroyed to the extent of leaving small ulcers, sufficed to render the feet tolerant of pressure at any point, and walking was allowed for a fortnight, still using the salicylic collodion every few days (as

often as could be borne). After this the feet were said to be "perfectly comfortable," but there was still some excess of horny epidermis at and around the sites of a few of the warts.

Izal (1:400) was used in the baths, and there was no trouble from suppuration. The minute ulcers, when they occurred, skinned over in three days, being filled with airol and covered with collodion. Double woolen socks and three-per-cent. salicylic-talc powder were directed to be used for several months after.

The large number of warts in this position, not entirely confined to points of pressure, and the urgent need and satisfactory issue of treatment, seemed to render the case worthy of notice.

#### CONCLUSIONS AND SUMMARY OF RESULTS OF 118 CASES OF RUPTURE OF THE KIDNEY.

The total number of cases of rupture of the kidney, in greater or less degree, which appear in KEEN'S tables, is 118. Of these, one case was under treatment when reported, and the result, therefore, is not known. Of the 117 cases, 67 recovered and 50 died, a mortality of 42.7 per cent. From these, however, if we are to judge rightly of the mortality, the following seventeen deaths in which treatment was futile or impossible should be deducted: the other kidney absent, 1; both kidneys injured, 2; found dead, 2; died of other injuries in addition to the renal injury, 12; total, 17. This leaves a total of 100, of whom 67 recovered and 33 died, a mortality of thirty-three per cent. This, however, is more than the necessary mortality of this serious injury, provided it is properly treated. There were thirteen deaths in cases in which no nephrectomy was done; eleven of these died from shock and hemorrhage, and two from peritonitis in addition. There were also ten late deaths without nephrectomy, of whom all died from septic causes, excepting two, who died, one from continuous and the other from secondary hemorrhage. Had nephrectomy been done in these twenty-three cases, it is a fair presumption that ten of them would have recovered, which would have reduced the mortality to twenty-three per cent.

One of the most important questions, therefore, in connection with the treatment, is whether nephrectomy should be done or not; and the light cast upon this question by the statistics collected in these tables is very im-

portant. Eliminating the two cases of partial nephrectomy, which both recovered, there are twenty-two cases of nephrectomy with eight deaths, a mortality of 36.4 per cent.; there were ninety-five cases in which no nephrectomy was done, with forty-two deaths, a mortality of 44.2 per cent. This shows a difference of eight per cent. in favor of nephrectomy, though the operation is only done in the most serious cases.

The value of nephrectomy, especially of early nephrectomy, as a life-saving operation, is all the more evident when we remember that the large majority of the cases in which no operation was done were but slightly injured. If, then, these less serious cases show a mortality so much greater than the graver ones in which nephrectomy was done, it is evident that operation in many of the ninety-five unoperated cases in which the lesion was of a serious character would have saved many lives.

Keen endeavors also, by making an analysis of the cases, to determine the relative safety of primary as compared with secondary nephrectomy, and of the abdominal as compared with the lumbar operation.

He finds five cases of primary nephrectomy with one death, a mortality of 20 per cent.; and thirteen cases of secondary nephrectomy with five deaths, a mortality of 38.5 per cent., showing that secondary nephrectomy is nearly twice as fatal as primary.

As to the route of the operation, there were three cases of abdominal nephrectomy, of which one died, a mortality of 33.3 per cent.; and fourteen of lumbar nephrectomy, of which four died, a mortality of 28.6 per cent. The number, especially of abdominal nephrectomies, is, of course, too small from which to draw any rigid conclusion, but on the whole lumbar nephrectomy is the more desirable operation.

The causes of death are also very instructive. They may be tabulated as follows: primary hemorrhage and shock, 11; continuous hemorrhage, 1; secondary hemorrhage, 2; injury of other organs, 12; found dead, 2; absence of the other kidney, 1; peritonitis, 5; coma, 2; pneumonia and empyema, 1; supuration and exhaustion, 10; anuria, 1; nephritis, 1; uncertain, 1; total, 50.

If we group these under more general headings, it will be observed that by excluding the injuries of other organs (twelve), those found dead (two), the case of one kidney (one), and the uncertain case (one), we have thirty-four cases left, and of these primary,

continuous and secondary hemorrhage, combined with shock, destroyed fourteen; supuration, including peritonitis, destroyed sixteen; leaving coma, anuria and nephritis responsible for only four deaths. These figures emphasize what has been already stated, that the dangers of rupture of the kidney above everything else are hemorrhage and sepsis.

The duty of the surgeon, then, seems clear. Where the symptoms are threatening, especially if there is marked evidence of hemorrhage or probable danger of sepsis, an exploratory operation should be done immediately. Whether nephrectomy should be done, is to be determined by the conditions already stated. It is especially to be noticed that the great mass of recoveries in rupture of the kidney are the slighter cases; the graver ones do not recover, unless an operation is done. In any case, therefore, with severe or dangerous symptoms, the surgeon should lean towards exploration, and in severe laceration towards early nephrectomy. It will add little to the risk and will probably save a considerable proportion of lives.

A word only is necessary as to hydronephrosis and rupture of the ureter. There were six cases of pseudo-hydronephrosis (so called since it is outside of the pelvis of the kidney), of which five recovered, the single death being from inguinal abscess. In one case a nephrectomy was done, followed by recovery. In the other five, either aspiration or tapping was resorted to, with four recoveries and one death.—*Annals of Surgery*, August, 1896.

#### EXTRA-PERITONEAL EXPLORATION OF THE URETER FOLLOWED BY NEPHROLITHOTOMY.

PERKINS says he has found reports of but six cases of extraperitoneal uretero-lithotomy.

Of these six operations, one (Twyniam's) was preceded by an exploratory laparotomy through which a stone was located in the right ureter just below the brim of the pelvis, two inches from the bladder; three weeks later, after the laparotomy wound had healed, the stone was removed by longitudinal ureterotomy through an extraperitoneal incision in the right iliac region.

One (Cabot's) was a primary exploration and needling of the kidney through a vertical lumbar incision, with negative results; then at once an exploration was made downward along the course of the ureter, and a small,

hard mass detected about two inches below the kidney; a needle showed this to be a little calculus, and it was immediately extracted through a small longitudinal incision into the ureter.

In two cases (Ralfe and Godlee's and Fenger's) a primary lumbar nephrotomy was done, without finding a stone in the kidney; immediate exploration of the ureter downward detected a stone in the ureter, in the first case, two inches below the kidney, and in Fenger's case two stones were found one and a half inches below the kidney; in both cases the stones were removed by longitudinal ureterotomy.

One (Kirkham's) was an exploratory lumbar incision with palpation of the kidney, without finding stone; exploration of the ureter discovered a stone therein, half an inch above the crossing of the external iliac artery; it was removed by ureterotomy.

In one case (Briddon's) lumbar nephrotomy had been performed without finding stone in the kidney; four years later, lumbar nephro-lithotomy, with extraction of a stone from a large pus-cavity, into which the kidney had been converted; four months after this, nephrectomy; and four months later, exploratory laparotomy, which located a calculus in the ureter just below the brim of the pelvis; the stone was at once extracted through an extraperitoneal incision into the ureter.

Of the three recorded cases of intraperitoneal uretero-lithotomy, in one (Cullingworth's) the impacted stone, which could be felt through the vagina just above the bladder, was mistaken for a diseased ovary prior to the opening of the abdomen; in another (Arbuthnot Lane's) a primary exploratory lumbar incision showed the pelvis of the kidney dilated, but did not locate the stone, which was found through a laparotomy wound, eight months afterwards, in the pelvic portion of the ureter, from which it was extracted. In the third case (Robert's), catheterization of the ureter showed obstruction one and a half inches above the bladder; lumbar incision and renal palpation were negative, but through an incision into the dilated ureter, one inch below the pelvis, a rubber bougie encountered an obstruction ten inches farther down. Through the vagina could be felt what seemed to be a growth of the size of an English walnut, high up in the pelvis, behind the uterus and to its left; it was thought to be a small tumor pressing upon the ureter and causing a valve-like

stricture. Four months later a median laparotomy was done, and no tumor found; but on cutting through into the ureter and exploring it with a sound, a stone the size of a large olive pit was detected and extracted.

In several cases stones in the ureters have been successfully removed through an opening made in either the pelvis of the kidney or in the kidney itself, by pushing them up into the pelvis; but in these cases a primary examination of the kidney through a lumbar incision had been made, and, no stone being found in it, the ureter was explored, either through its renal orifice with a sound, or by palpation externally. And in one case (Hall's) this manœuvre was immediately preceded by an exploratory laparotomy.

From the histories of seven of these nine cases of uretero-lithotomy, in which either primary explorations of the kidney were made, or operations on the kidney were actually done, it is evident that the symptoms produced by the impacted ureteral calculus simulated those of a stone in the kidney itself.

In Perkins' case the converse of this was true. The symptoms caused by a renal calculus simulated those of an impacted ureteral calculus, and determined him in making a primary extraperitoneal exploration of the ureter rather than a primary nephrotomy.

An examination of the symptoms of stone in the kidney shows that they are very similar to those produced by stone in the ureter, with the exception of the location of the point of greatest tenderness to pressure. When the stone is located in the kidney or its pelvis, this point is generally found just below the twelfth rib, at the outer edge of the erector spinæ mass—in other words, directly over that portion of the kidney accessible to pressure. When a stone is located in the ureter outside of the true pelvis, the point of greatest tenderness is to be found either in the loin below the level of the kidney, or in the iliac region by deep pressure through the anterior abdominal wall over the course of the ureter, the most common location being about two inches above Poupart's ligament and two inches internal to the anterior superior spine of the ilium.

It is upon the location of this point of greatest tenderness that most reliance is placed in making a differential diagnosis; and that this is misleading in some cases is abundantly shown by the history of the following case:

Mr. B., aged forty-eight years; American;

married; a hotel proprietor for the past two years, but formerly an agent for a railway company. Family history negative, except that his mother died of diabetes. He kept a diary for many years, and has notes of numerous attacks of severe abdominal colic occurring since 1889. He always enjoyed good health until 1878, when he had his first attack of renal colic, which lasted for thirty-six hours and was followed by the expulsion per urethram of a very hard, smooth, white calculus of about the size and shape of a small white bean. There was no further trouble until September, 1889, when he had an attack of severe colic-like pain in the left iliac region, accompanied by nausea and vomiting, which lasted half a day. In December, 1889, he had another and similar attack. These attacks occurred for the next five years till in May, 1895, he had a severe attack, with convulsions, and was unconscious for about an hour.

In the left iliac region on deep pressure could be felt a cord-like structure, apparently about the size of a man's finger, extending from about the middle of Poupart's ligament vertically upward to the edge of the ribs. This was slightly movable under the fingers, and tender for two or three inches above the ligament; at a point about two inches above the ligament, and two inches internal to the anterior superior spine of the ilium, was an exquisitely sensitive spot, that could be covered with one finger-tip. There was no enlargement of the kidney, and it could not be felt. There was no particular tenderness over the kidney or in the lumbar region, though very deep, hard pressure over it caused slight pain. Exploration of the rectum and bladder gave negative results. The urine was slightly turbid, specific gravity 1.022, and of very strongly acid reaction; it contained a large trace of albumin, but no sugar. The sediment consisted of numerous crystals of oxalate of lime, a few red blood-disks, and a few pus cells, but no casts were found. The urine averaged about thirty-six fluidounces in twenty-four hours.

An oblique incision was made in the left iliac region, about five or six inches in length, having for its centre the most sensitive spot, which had before been marked on the skin. When the peritoneum was reached it was stripped off and rolled inward until the ureter was found attached to it. The ureter appeared to be of about the normal size, not dilated and enlarged. Careful palpation downward into the small pelvis behind the

bladder as far as the fingers could be inserted, revealed nothing abnormal, and the absence of enlargement of the ureter indicated that the trouble must be located higher up. The incision was therefore enlarged upward and backward, a few inches at a time, and the ureter followed upward throughout its whole length to the pelvis of the kidney, without finding any evidence of trouble in it. When the kidney was reached it was found to be of normal size and consistence, and without irregularities of surface, except at one place in the region of the pelvis, where there was a slight thickening with an abnormal amount of resistance to pressure. A needle introduced through the outer border of the kidney in a direction toward the pelvis, at once struck a stone with a click that could be heard by all present. A scalpel passed along the needle as a guide made an incision about an inch in length through the kidney substance, which was at once dilated by the finger until the latter touched a rough stone in the pelvis; this was grasped by a slender Wyeth hemostatic forceps and easily extracted. Exploration of the pelvis and calyces with the finger-tip failed to detect any other concretion. No probing of the ureter was thought necessary, as it had been carefully palpated throughout its entire length.

The history of this case affords the best possible corroboration of the well known surgical fact that a comparatively small, rough, movable stone in the pelvis of the kidney is capable of producing the most distressing and dangerous conditions. But why a stone so situated should produce a constant, localized, exquisitely sensitive point of tenderness at the middle part of the ureter, is not easily explainable. The fact that it did produce this effect must necessarily invalidate to some extent the chief diagnostic sign of a calculus impacted in the ureter, and brings up at once the question whether in all cases with symptoms pointing to stone above the bladder, unless the stone can be actually felt in the ureter, it would not be better surgery to first explore the kidney and work from above downward rather than from below upward. Certainly, no more positive indications of stone in the ureter would be likely to be found in any case than this one presented, and the operator believes that every surgeon in a similar case would be tempted to first explore the ureter as he did.

However, the result of this operation has somewhat shaken his faith in the value of the diagnostic symptoms of ureteral calculus, un-

less, indeed, this be the exception that proves the rule. However much we may desire to arrive at an exact diagnosis, it is well always to keep in mind the ratio of probabilities between two conditions, and to give that ratio its due weight in reaching a conclusion in cases where the signs and symptoms point to the lesser probability.—*Annals of Surgery*, August, 1896.

#### THE TREATMENT OF ABORTION.

McKEOUGH (*American Medico-Surgical Bulletin*, Sept. 12, 1896) states that the first question in the treatment of abortion is one of prophylaxis. If consulted by a woman who has had frequent abortions, a most careful investigation should be made into the past history of the person herself, and also of her husband, in order to ascertain the presence of any constitutional cause such as syphilis, rheumatism, or anemia. A search should be instituted for any local cause such as displacement, laceration of the cervix, endometritis, cervicitis, or pelvic adhesions, and, if discovered, appropriate treatment should be adopted. An abortion has been arrested even after threatening symptoms have manifested themselves, by replacing a retroflexed uterus, and the cases are innumerable in which a curettement and a trachelorrhaphy have brought about, not only restored health, but a pregnancy and its happy results.

A woman who aborts at the same period in several pregnancies, and in whom no disease of the uterus and its appendages or constitutional ailments can be discovered, should have absolute rest in bed at the approaching time. In these cases Waumann highly recommends asafetida, commencing with two three-grain pills a day, increasing to ten, then diminishing. It is in these cases, *abortion habitualis*, that the author believes viburnum to be of the greatest value.

In abortions due to disease of the placenta causing the intra-uterine death of the fetus, chlorate of potash, first introduced by Simpson, is of benefit.

For threatened abortion, reliance must chiefly be placed upon perfect rest and opium. Immediate confinement to bed in the recumbent posture should be insisted upon, on the first suspicious symptom showing itself, with the use of the bedpan when required. A hypodermic injection of morphine is preferred in most instances, but in some cases an opium suppository or an enema of laudanum may be the most desirable.

Opium is a most valuable remedy here: if given sufficiently early, it controls pain and hemorrhage, arrests uterine contraction, and prevents the expulsion of the fetal contents. If hemorrhage has been profuse and the patient shows the results of the loss of a large quantity of blood, opium is one of the best cardiac tonics; if the retention of the contents of the uterus is not possible, it will aid in the dilatation of the cervical canal and facilitate fetal expulsion.

The amount of hemorrhage, the severity and duration of the pain, and the degree of dilatation of the cervix, are the points to be taken into consideration in forming an opinion as to the preventability of the abortion. If any of these symptoms is pronounced, it is not safe to give a favorable prognosis; and if they are all present we cannot hope to arrest the expulsion of the ovum.

When abortion is inevitable, the patient must receive our earnest attention. If it be the result of natural causes, and the death of the ovum has occurred several days previous to its expulsion, it usually comes away entire, when the uterus will contract, the pain and hemorrhage cease, involution proceed normally, and the patient's condition soon be the same as before pregnancy. If the ovum is alive, or if the abortion be induced by mechanical means, as it is to be feared is too frequently the case, the fetus usually escapes, leaving the whole or a portion of the placenta and chorion inside.

If called to a case of abortion or threatened abortion, which upon examination is found to be inevitable, but with trifling hemorrhage and the cervix not dilated, it may be well to adopt an expectant course on the lines just referred to, although it would not be wise to leave the patient long at a time without a proper attendant prepared to tampon immediately if this is required, since at any moment hemorrhage may become alarming. If hemorrhage is severe or the patient is at some distance, without a trained nurse or other competent attendant, and the cervix not sufficiently dilated to allow an immediate delivery, the vagina should be thoroughly tamponed.

Every physician should carry a tampon in his obstetrical bag, ready for any emergency that may arise, but a kite tampon is quickly extemporized if the material is obtainable. It consists of about a dozen pieces of wadding, each the size of a small apple, attached to a string, each plug being about six inches from



its neighbor. Iodoform gauze also makes a good tampon, but is expensive.

Before inserting the tampon, the vagina should first be irrigated with a 1:4000 or 1:5000 bichloride solution; the patient is then placed upon her side in the Sims posture, the hip on the edge of the bed, the perineum well retracted with a speculum, and the vagina carefully and firmly packed with the tampon, which has first been well soaked in boro-glyceride. If the patient is weak or collapsed from hemorrhage, the tampon gives her time to pick up and opportunity for the attendant to administer stimulants and light nourishment; it is allowed to remain at least twenty-four hours, and in some cases has remained thirty-six or even forty-eight hours without becoming offensive. On removing the tampon the cervix is found dilated or dilatable.

If, when your patient is first seen, the cervix is fully dilated, with possibly the ovum presenting, or if the fetus has escaped and the abortion is incomplete, the whole or a portion of the placenta and chorion remaining, it is advisable to at once proceed to clean out the uterus. Conservative members of the profession usually adopt, even in these cases, expectant measures, unless excessive hemorrhage occurs or septicemia threatens, and trust to nature to rid itself of the offending contents, and doubtless the remnants of an abortion may remain in the uterus without any immediate danger. But so long as the ovum or any portion of the placenta, or any debris, remains in the uterus, hemorrhage may occur at any time, involution is delayed and septicemia may develop, if not in an acute form, in an insidious and none the less serious manner, resulting in endometritis, salpingitis, or other pelvic disease, rendering the patient a chronic invalid; indeed, there is no more fruitful cause of disease of the uterus and its appendages than neglected miscarriage.

In order to remove the contents of the uterus, the patient is placed with her hips well over the edge of the bed, or preferably she is lifted upon a table, and while the necessary manipulations are being carried on, the soiled clothes are removed, clean ones arranged, and the bed put in proper condition again to receive her. The lithotomy position is the best, the hips resting on a Kelly's pad.

The vagina and cervix are carefully disinfected before anything is introduced into the uterus. If the cervix is sufficiently dilated to allow of the easy introduction of one or two

fingers, an immediate effort is made to empty the uterus; if not, the cervix is dilated. This is very easily accomplished, and causes scarcely any pain. One or two sterile fingers are then introduced into the uterus for exploratory purposes, and any large mass that can easily be detached is removed. But, as a rule, the fingers cannot accomplish with the same ease and facility what can be done with the dull irrigating spoon curette. After the fingers have separated what they can easily, the curette is introduced, the entire uterus carefully gone over, and all the contents removed. If the uterus has been septic previously, a solution of 1:5000 bichloride is allowed to flow through the curette; otherwise sterilized water answers well. An anesthetic is not necessary.—*American Medico-Surgical Bulletin*, Sept. 12, 1896.

#### THE LIMITS OF NEPHRECTOMY.

P. WAGNER (*Chir. Beitr. Festschrift für Benno Schmidt*) warns against the too hasty removal of a kidney. Experience has shown that the remaining kidney in most cases does not undergo compensating hypertrophy, and cannot do the work of both organs, and that many patients finally die on account of insufficient renal action. "In no case," he says, "should a sound kidney be sacrificed, and an affected one only in case the lesion threatens the life of the patient. Those troubles which can ultimately be cured by conservative measures, even though long continued, are no excuse for nephrectomy, for even the smallest remaining portion of active kidney substance may be of vital importance."

Thus, in place of the various conditions which are held by some to justify removal of one kidney, Wagner advocates the following operations:

Nephrorrhaphy for floating kidney, including cases of intermittent hydronephrosis due to dislocation of the kidney.

Nephrolithotomy for renal calculi, whether in the kidney or its pelvis, in the absence of extensive suppuration or advanced alteration of the kidney substance.

Nephrotomy for pyonephrosis, hydronephrosis, and solitary cysts of the kidney or echinococcus cysts.

Partial resection for benign tumors, localized abscesses, calculus formation. This operation will probably have a much wider application in the future than it has at present.

Nephrectomy may be necessary either as a

primary or secondary operation. As a primary operation it is indicated for malignant tumors of the kidney or its capsule, in tuberculosis, and in abscesses which are distributed throughout the whole kidney; also in injuries which have badly lacerated the kidney and caused uncontrollable hemorrhage.

Secondary nephrectomy may become necessary in emaciated patients with suspected tuberculosis in other organs, whom nephrotomy and tamponade have failed to relieve. In cases of abscess in which the integrity of the other kidney is suspected, nephrotomy is first to be tried; this failing, the kidney should be removed. For a similar reason, badly lacerated kidneys whose artery and vein are intact, should be sewed, tamponed, or in part resected, and nephrectomy be performed only secondarily if these measures do not succeed.

There remain to be considered only pyonephrosis and hydronephrosis. Primary nephrectomy in these cases deprives the body of the use of some remnants of active renal tissue, whose loss under certain circumstances may mean great danger to the patient. Ayer's investigations have shown that a hydronephrosis almost never destroys all the secretory tissue. Nephrotomy in such cases can do no harm, and statistics show that the resulting fistulas usually close. In cases where a fistula has long continued to discharge urine or pus, a secondary nephrectomy is to be considered.—*American Medico-Surgical Bulletin*, Sept. 12, 1896.

#### SUBPHRENIC ABSCESS.

The difficulty of diagnosing this condition is well shown by the fact that in only two of the five cases observed by CARL BECK was a correct diagnosis made before operation. It is sometimes impossible to distinguish an encysted pyothorax from a subphrenic abscess. As regards exploratory measures: aseptic precautions having been observed, the needle should be introduced over the seat of abscess, and in case of a negative result reintroduced several times in different places—as the pus-cavity may be either of small extent, or it may contain a cheesy accumulation, or, finally, it may be divided into several minor cavities by adhesions; after each negative result a wire should be pushed through the needle, so that any pus which may have remained adherent to its inner surface may become detached. Occasionally it will be found useful to fill the syringe with sterile

water after the operation, and force the solution through the needle into a Petri dish. If the microscope does not give sufficient information, after examining this fluid, cultures may be made in properly prepared tubes.

The treatment of subphrenic abscess is practically the same as that of pyothorax. As a rule, the ninth or tenth rib, preferably in the median axillary line, is selected for resection. If the abscess be large, two or three ribs should be resected, in order that the whole cavity may be packed with gauze, which procedure seems to be the ideal treatment of any abscess. If the abscess be small, it will not generally be found within the axillary line; then the exploratory needle will always indicate the ultimate route of the incision. Exceptionally such abscesses may be reached below the costal arches or the xiphoid process.—*International Journal of Surgery*, October, 1896.

#### USE OF LARGE NON-PEDICULATED FLAPS FOR PLASTIC PURPOSES.

The fact that flaps of skin entirely separated from their surrounding tissues will heal if transplanted, has been known for more than a century. Skin-flaps taken from the thighs were used to make artificial noses in India during the latter part of the last century. Although these operations were performed by craftsmen, they were more successful than those done by the surgeons. The latter did not succeed in their efforts to utilize non-pediculated flaps until the middle of the present century, when Wolfe transplanted a flap to form an eyelid after having removed the subcutaneous fat. After the introduction and general adoption of the Thiersch method, this one was abandoned. KRAUSE was the first surgeon to successfully use flaps of skin extending down to the adipose layer. At first, following the method of the Indian craftsmen, he whipped the flap after having detached it upon three sides, in order to produce an artificial hyperemia; but this procedure appearing to be harmful, he abandoned it. The secret of success is most strict asepsis and the use of no antiseptic solutions or moist sponges—in other words, a perfectly dry operation. By baths, curettement, and wet aluminum acetate or creolin dressings, he prepares a granulating surface to which the transplantation is to be made, all cicatricial and chronically inflamed tissues being removed. Hemorrhage is checked by gauze sponges. The part of the body from

which the flaps are to be taken must be thoroughly cleansed, all antiseptic solutions being washed off with sterilized water. The flaps are cut off in the form of a longitudinal ellipse and are then shaped to the part to be covered. They are dissected up with a scalpel, cutting between the cutis and subcutaneous fat. After dissecting up the tip, this is folded in so that the wound surface of the flap is covered as more and more of it is freed. If a very small amount of adipose tissue remains, it will not interfere with the nourishment of the flap. The latter usually shrinks to two-thirds its original size longitudinally and a little less transversely. It adheres to the prepared surface as if glued on.

Secondary hemorrhage is most likely to occur when a flap is placed upon the cancellous portion of bone. It is better to wait a few days before transplanting upon such tissue, because nutrition of the flap through newly formed blood-vessels does not occur until the sixth day, and meantime the flap is nourished by diffusion from the vessels, which will be impossible if a blood-clot intervenes. Krause never transplants upon freshly severed tendons or upon cartilage, on account of the lack of sufficient nourishment for the flap.

In transplanting upon the leg or arm it is not necessary to suture the flap. The dressing must, however, be most carefully applied. The limb should be massaged daily after transplanting upon ulcers of the leg. In nineteen cases of such ulcers which Krause treated by transplantation, fifteen were successful after a lapse of three and a half years. He used this method in forty-seven cases, and was successful in the majority. The special indication for this method is the necessity for covering extensive defects upon the leg or arm, especially when a cicatrix is exposed to mechanical injury. The frequent ulceration of Thiersch's grafts under these circumstances renders them unfit for such surfaces.—*Volkmann's Sammlung Klinischer Vorträge*, No. 143, 1896.

#### A PAINFUL ADENOMYOMA OF THE ROUND LIGAMENT.

CULLEN (*Johns Hopkins Hospital Bulletin*, May and June, 1896) relates an important case in the practice of Dr. Kelly. The patient was married and thirty-seven years old. A swelling in the right inguinal region had been observed for eight years. Recently it became the seat of violent cutting pains,

which radiated to the back, and were most severe after exertion or at the menstrual period. When examined the tumor occupied the upper part of the right labium. An oval incision was made over it, and it was dissected from the round ligament; higher up on that process was a smaller nodule, about two-fifths of an inch long. The round ligament was cut off above the smaller growth, and its stump sutured in the canal, which was closed as in the radical cure for hernia. Recovery was rapid. The larger tumor was a firm nodule measuring over an inch and a third by one inch, and incorporated with a dense mass of subcutaneous fat: It consisted of unstriped muscular fibre, traversed in all directions by tubular bodies identical in appearance with uterine glands. Cullen insists that the excessive pain in the nodule at the menstrual period was significant, suggesting some definite sympathetic relation between the uterus and the nodule.

Leopold, Aschenborn, Coulson, Roustan and Martin relate cases of cystic myoma of the round ligament. The origin of the cysts is probably explained by Von Becklinghausen's recent discoveries.—*British Medical Journal*, Oct. 10, 1896.

#### IMMEDIATE CYSTORRHAPHY AFTER SUPRAPUBIC LITHOTOMY.

DE VIACCOS (*Rev. de Chir.*, August, 1896) holds that immediate suture of the opening in the bladder should, as a rule, be practiced after the high operation of lithotomy. Such practice, it is asserted, will very rarely be contra indicated by the state of the vesical coats. In 105 cases of suprapubic lithotomy observed by the author in his own practice and at different hospitals, there were only twelve in which the morbid changes in the bladder were so severe as to render useless the application of stitches. Complete occlusion of the vesical wound, it is acknowledged, cannot be attained by suture, however skilled the operator may be, nor by any method of stitching; but, the author argues, primary union of the wound does not depend on such complete occlusion—it is quite unnecessary to aim at this, provided every precaution be taken to prevent accumulation of urine in the bladder. An occlusion as complete as possible of the raw edges, and effectual catheterism, whether complete or intermittent, will suffice to guard the patient against any post-operative complication. The author recommends a continuous suture of catgut. The wound in the

bladder usually heals by the fourth or fifth day and before the catgut is absorbed. He has practiced, with good result, immediate suture after high lithotomy on old as well as on young patients, and is convinced that a perfectly sound bladder is not an indispensable condition for the success of this practice, nor is infancy a specially favorable period of life for it.

#### USE OF FORCEPS IN FRANCE AND GERMANY.

An article in the *Revue Internationale de Médecine et de Chirurgie* of August 10, 1896, compares the statistics of the use of the forceps in obstetric cases in France and Germany, greatly to the advantage of the French methods. The superiority of Tarnier's forceps (which are used in France) to Noegele's (which the Germans use) is one cause of the better results obtained. But the chief cause is the method of applying the forceps. In France the head of the fetus is seized symmetrically from ear to ear, the axis of the blades corresponding to the occipito-mental diameter, except in superior-strait cases. The practice in Germany is the reverse of this: the forceps are applied symmetrically to the axis of the pelvis, and the fetal head is seized as happens to be convenient. The statistics show the results in the frequent lacerations and elevated fetal mortality.—*Journal of the American Medical Association*, Sept. 19, 1896.

#### THE TOXIN TREATMENT OF MALIGNANT TUMORS.

In the *Wiener Medizinische Blätter* of August 27 we find an abstract of an account by MATAGNE, of Brussels, of his experience in the treatment of "inoperable" malignant tumors with Dr. Coley's erysipelas and *Bacillus prodigiosus* toxins, originally published in the *Gazette Médicale de Liège*. He has employed the treatment in fourteen cases, and maintains that in one of them a complete cure was accomplished. The patient was a man sixty-four years old, who in January, 1895, first noticed something abnormal in his mouth. In February he consulted a physician, who diagnosticated epithelium and advised an operation, to which the patient did not consent. Many other physicians saw the patient, and they all concurred as to the diagnosis and urged the man to have an operation performed. Early in June the patient consulted Dr. Matagne. By this time he had a three-lobed tumor which occupied

the floor of the mouth. The largest lobe was the size of a nut; in the left submaxillary region there was a gland as large as a small nut—the kind of nut is not specified in either instance—and under the chin there were two other glands the size of a bean. The tumor was hard and ulcerating, but without suppuration, and lancinating pains proceeded from it toward the left ear. In a short time the symptoms were so marked that no observer had a doubt of the epitheliomatous nature of the growth. However, no histological examination of the neoplasm was made, for fear of opening a channel for secondary infection.

The treatment was begun on the 10th of June. Five centigrammes of the toxin were injected beneath the skin of the neck below the hyoid bone. In two hours the man's temperature was 101.3°. On the 16th, forty centigrammes were injected into the tumor, and hard swellings made their appearance in half an hour; the tongue remained quite swollen for two entire days. The highest temperature reached during the treatment was 105.8°. During the whole febrile period the tumor diminished in size very decidedly, and the diminution kept on after the subsidence of the fever, so that by the beginning of September not a trace of the growth remained.

Another case was one of recurrent sarcoma of the neck in a woman seventy-eight years old. The tumor was as large as an egg and situated in front of the sterno-cleido-mastoid muscle. Another tumor, of the size of a hazelnut, was seated in the masseteric region, and two small but very hard glands were to be felt under the chin. After a course of treatment lasting three months and a half, the injections being given every second day, the large tumor had wholly disappeared and the one in the masseteric region could hardly be felt; but the enlarged glands had not undergone complete involution, when the treatment was accidentally interrupted. Six months later there was a moderate aggravation of the disease, and the patient was advised to submit to the injections again.

In a third case, one of recurrent sarcoma of the neck, of the size of a fetal head, treatment with the toxins was continued for three months, and the tumor had then shrunk to two-thirds of its original size. The patient, out of patience with the long duration of the treatment, decided to call in a surgeon, who operated, with a fatal result.

In a case of recurrent sarcoma of the arm the injections checked the growth of the

tumor only temporarily. In one of sarcoma of the pharynx no result was noted other than a brief restraint of the growth.

The sixth case was one of deeply ulcerated sarcoma of the neck in a very debilitated man sixty-four years old, who died during the reaction following an injection of ten cubic centimeters of the toxins after the treatment had been carried on for five weeks. The tumor had diminished in volume a little.

The other seven cases were all examples of epithelioma or carcinoma, and, except in two of them, the results were very slight. In one of these two, a recurrent carcinoma of the breast, the injections seemed to check the growth of the tumor, for it remained stationary for several months; in the other, a uterine carcinoma, there was alleviation of the pain together with reduction of the size of the tumor.

Such results as Matagne has reported certainly ought to encourage Dr. Coley to persevere in his labors. It is evident, we think, that the toxin treatment is of some value, more particularly in cases of sarcoma; the problem is, to ascertain the class of cases in which it holds out a distinct promise of proving decidedly palliative if not curative.—*New York Medical Journal*, Sept. 19, 1896.

#### PLASTIC SURGERY.

The *Journal des Sciences Médicales de Lille* of August 15, 1896, describes a case where a cutaneous epithelioma on the ankle, twelve by nine centimeters, was removed, a pear-shaped living flap from the thigh sutured in its place, and the leg flexed against the thigh in a plaster cast. A small flap cut above was twisted around to cover the centre of the open space, leaving only a couple of unimportant spaces at each end uncovered.—*Journal of the American Medical Association*, Sept. 19, 1896.

#### POST-OPERATIVE INTESTINAL OBSTRUCTION.

ADENOT (*Revue de Chirurgie*, January, 1896) divides post-operative intestinal obstruction into the following classes:

1. Occlusion caused by adherence of the intestine to raw surfaces, intraperitoneal drains, and inflamed organs.
2. Occlusions due to bands.
3. Those due to anomalous position of the intestines.
4. Those due to an exaggeration of the normal left subcostal angle of the colon.

5. Spasmodic occlusion.

6. Occlusion due to inefficient operative procedures.

There are three marked symptoms of post-operative intestinal obstruction, viz.:

1. Persistent absence of the passage of flatus.

2. Nausea and vomiting.

3. Painful point in abdomen.

As regards treatment, one should not delay too long. While it is legitimate to try mild purgation, insertion of rectal tube, etc., the continuance of such treatment should be abridged proportionally to the severity of the symptoms and clearness of diagnosis.

The abdomen should be opened largely. Work quickly and have good assistants. Examine the cecum; if it is not distended, the occlusion is located higher up in the small intestine; if it is distended, explore the sigmoid flexure. One should always follow a definite plan: first ascertain the extent of the occlusion, then its location, and, lastly, the cause. Examine the pedicles, raw surfaces, angles of the intestine, drainage apparatus, etc. Examine the colic flexure of the left side. If the obstacle cannot be found, evisceration must be performed. Recourse should not be had to this grave procedure too readily, notwithstanding that it has succeeded in the hands of Jaboulay and Pollosson. Tuju seems to resort to it rather steadily. Sometimes an artificial anus is necessary, but it is not an operation of choice.—*University Medical Magazine*, October, 1896.

#### STRAIGHTENING THE SPINE BY WIRING THE SPINOUS PROCESSES TOGETHER.

CHIPAULT's new method of treating caries of the spine is described in the *Therapeutische Wochenschrift*, 1896, No. 35. The spine is straightened, and held in this position by wires that fasten the spinous processes together, so that the orthopedic appliances do not have to contend with a constant tendency to curvature. After chloroform, the patient is placed on his belly, three-quarters pronation, the back turned to the operator. A longitudinal opening is then made along the spinous processes, two to three vertebrae above and below the limits of the curvature. Without touching the interspinous ligaments, both sides of the processes are exposed and the soft parts drawn aside; the assistant at each end then pulls the spine to straighten it as much as possible, and a silver wire is

passed through the interspinous ligament above the highest process to be ligated, at the bottom, near the root. The wire is then cut, leaving on each side a piece twice as long as the wound. The ligating is done with these two ends, crossing them back and forth and passing them through each interspinous ligament from the highest process downward until the lowest is reached, when the two crossed ends are twisted together. The wires must be passed through the ligaments close to the lower edge of the process above, to afford as firm a support as possible. Each crossing must be tested to see if it is strong and taut before proceeding to the next. The soft parts are then sutured without drainage, the wound bandaged, and the patient placed in bed. The two difficulties—lateral curvature of the spine, and ankylosis of adjoining processes—are met by boring a hole in the processes in the latter case, and in the former by extending the end of the wire on the convex side up to the loop at the top and stretching it tight, which straightens also the lateral curve. In cases of lumbar or dorsal caries, the bandage can be changed in five to six days, and in cervical caries in ten days, the stitches being then removed from the soft parts.

This ligature of the spinous processes is undoubtedly an advance in the treatment of Pott's disease, but it only applies to moderate curvatures of recent origin that have commenced suddenly and developed rapidly and are capable of reduction in anesthesia, and to weak spines. It is not adapted to old curvatures or those involving too many of the vertebræ. The presence of an unopened cold abscess or of paralysis is not an obstacle. Absolute immobilization should follow the operation.—*Journal of the American Medical Association*, Oct. 3, 1896.

#### PATHOLOGICAL CONDITIONS OF THE PELVIS.

Dr. H. T. HANKS (*American Gynecological Journal*, July, 1896) writes as follows with regard to the choice of operation in this class of cases:

If the surgeon is well equipped, he should do a vaginal operation—a vaginal hysterectomy, in fact—when practicable:

1. For a suppurative pelvic disease, if located in the true pelvis, when exudation covers and agglutinates the uterus, tubes, ovaries, and rectum.

2. For ovarian abscesses.

3. For an unruptured tubal pregnancy, and for a ruptured tubal pregnancy in the broad ligament.

4. For small ovarian and parovarian movable cysts, and other small movable tumors.

5. For movable uteri, with small fibroids.

6. For carcinoma uteri when the uterus only is involved.

#### TREATMENT OF DETACHMENT OF THE RETINA.

CASEY A. WOOD, in the *Journal of the American Medical Association* of October 3, 1896, speaking of treatment in this condition, says detachment of the retina does not occur often in this country, but he has on his records six cases that consented to be treated for a sufficient length of time to make his experience with them worth mentioning. The treatment for two was scleral punctures, for one iridectomy, and the other three had prescribed for them continued rest in bed with pilocarpine injection. Only in one case, treated by puncture and pilocarpine, was there a field expanded, and the central vision improved to finger-counting at seven feet, although at one time it was reduced to perception of light. This improvement continued for nearly a year, when the patient was lost sight of.

Wood's experience leads him to think, with Bull of New York, that we have as yet discovered no better device than that resorted to with occasional success by the older ophthalmologists, viz.: rest in bed, bandages, atropine, and the internal use of some absorbent. Instead of the long-continued use of pilocarpine, especially when that drug is ill-borne by the patient, we may substitute soda bicarbonate and potassic iodide, well diluted with water. In all recent cases where the eye is quiet and there is no vitreous strand to sever, conjunctival puncture of the sclera may do temporary good and vision be improved. Division of fixed membranous bands in the vitreous may be done without causing much reaction, and may prevent extension of the disease. He does not approve Scholer's method.

Many cases of spontaneous cure are recorded; indeed, one may safely say that of all the histories of cures, temporary and permanent, at least ten per cent. were accomplished without treatment. So numerous and well authenticated are these recoveries that a large percentage of the results obtained after iridectomy, removal of the lens, the

use of atropine, bandaging, pilocarpine, etc., and even in some cases after posterior operation, are really brought about by local rest—by putting the patients in such a position that they cannot by over-exertion of any kind make a bad matter worse. The retina, having meantime broken loose from its connection with the shrinking vitreous, returns to its natural position—and the treatment, medical or surgical, receives the credit.

#### THE SUTURING OF ARTERIAL WOUNDS.

HEIDENHAIN (*Centralbl. für Chir.*, 1895, No. 49) reports a case in which, during removal of a carcinoma of the breast, the axillary artery was wounded. The edges of the wound were caught with hemostatic forceps, and a continuous suture of catgut introduced with needles such as are used in inserting intestinal sutures. The wound was packed, and not closed until the end of forty-eight hours, when all danger of secondary hemorrhage seemed to be passed. The case recovered completely, and there was no evidence of a traumatic aneurism when the author examined the patient six months later. The author advises the use of catgut, such as is used for ligatures, and the union of endothelium to endothelium; sometimes there is a slight oozing through the stitch-wounds after the suture is completed, but packing for a few minutes will stop it. He does not believe it is necessary to heal the wound by secondary suture, as the healing of the tissue about the artery tends to support it.—*American Journal of the Medical Sciences*, December, 1896.

#### ROENTGEN RAYS IN GUNSHOT WOUNDS OF THE HEAD.

MAX SCHEIER (*Deutsche Med. Woch.*, Oct. 1, 1896) relates a case where by means of the Roentgen rays it was possible to prove the presence of a bullet in the brain and approximately to localize its position. A man, aged twenty-seven, received a gunshot wound five years ago, just above the outer end of the superciliary ridge on the right side, followed by unconsciousness. No exit wound was to be found. Later, amaurosis in the right eye, swelling and prominence of the eyeball, and dilatation and immobility of the pupil, were observed. The right face was anesthetic. The bullet was thought to be present in the orbit, where a large blood-effusion had taken place. The bullet could not be found there, but the inner and upper part of the orbital

wall was ascertained to be splintered. Five years later there was complete paralysis of the right fifth nerve except its motor branch, and paralysis of the olfactory and optic nerves. Buka took a Roentgen photograph of the head. A shadow five millimeters in diameter, eighteen millimeters from the root of the nose and eight centimeters from the back of the skull, was distinctly seen. The position of the bullet was somewhere in the neighborhood of the right Gasserian ganglion. If a photograph could have been taken immediately after the injury, the exploration of the orbit would have been found to be unnecessary. A fracture of the base of the skull must have occurred, and thus the paralysis of the optic and olfactory nerves was brought about. Perhaps an operation undertaken immediately after the accident might have relieved the pressure on the trigeminal nerve, and thus prevented the paralysis.

#### THE COURSE AND PROGNOSIS OF ORBITAL TUMORS, AS INFLUENCED BY SURGICAL OPERATIONS FOR THEIR REMOVAL.

The following conclusions are based upon the histories of thirty-six cases, all taken from the private practice of Dr. W. T. BULL (*New York Medical Journal*, Aug. 29, 1896), as it has been proved that patients in private practice can be more satisfactorily followed up than those in hospital practice. All these cases have been watched from start to finish by the writer, and the course of the disease and the results of operative interference are given in detail in his paper. In a much larger experience, extending over a period of twenty-five years of hospital service, the same conclusions have been forced upon him.

1. The prognosis of all forms of malignant orbital tumors, whether primary or secondary, is unfavorable; and if the tumor is primarily in one or more of the deep facial bones or their sinuses, the prognosis is positively bad.

2. Except in the case of encapsulated tumors of the orbit, surgical interference is almost invariably followed by a return of the tumor; and the growth of the secondary tumor is more rapid than that of the primary lesion. With each succeeding operation the period of quiescence in the return of the tumor grows shorter, and the rapidity of the growth increases.

3. The patient's family, and in certain

cases the patient himself, should in the beginning be told of the serious nature of the trouble, and be warned that complete removal of all disease germs is a well-nigh hopeless task. The burden of the decision as to surgical interference must rest upon the shoulders of the patient.

4. Repeated operations in these cases undoubtedly shorten the life of the patient. While it is, therefore, our duty to operate in all cases in order to relieve severe or unbearable pain, we should be slow to operate merely for the sake of relieving temporarily physical disfigurement or deformity, especially if we are convinced that by so doing we shorten the life of the patient, even if that shortened life is rendered more bearable to him.

#### LITHIASIS IN BOYS.

SCHWEIGER (*Wiener Med. Woch.*, Sept. 12, 1896) states that in Hungary children suffer not infrequently from stone. He reports ten cases, the ages of the patients varying from two and a half to twelve years. In the matter of treatment he strongly advocates, for private practice, suprapubic cystotomy, which, he states, requires no unusual instruments and no special skill; in these respects it stands to lithotomy as does tracheotomy to intubation. He finds the suprapubic operation very easy in children, and even safer than litholapaxy, though the time in bed is somewhat longer. The bladder, which heals very readily in young subjects, should be at once sutured completely with silk, no drainage being adopted. The only special source of difficulty is the great reflex excitability of the bladder in children, which may prevent its being properly distended; a low insertion of the peritoneum may also complicate the operation. The author has had no trouble with the stitches in any case; he does not think they should ever require removal. Stones are sometimes impacted in the urethra, whence the simplest mode of dislodgment is a prolonged warm bath, which is often effective alone. In one of the author's cases a periurethral abscess had formed, which, when cut down upon, was found to contain the stone; in another the concretion was removed by urethrotomy, and in a third it was extracted from the cavernous urethra by suprapubic cystotomy. In both the latter cases retention and dribbling had persisted for some days, and the bladder reached nearly up to the umbilicus.—*British Medical Journal*, Oct. 31, 1896.

#### CICATRICAL STENOSIS OF LARYNX; INTRALARYNGEAL DIVISION AND INTUBATION.

In the *Birmingham Medical Review* for June, 1896, Mr. F. MARSH reports the case of a girl, aged five years, who had tracheotomy performed for membranous laryngitis. Various unsuccessful attempts were made for twelve months to dispense with the tube. Under chloroform a laryngoscopic examination was made; considerable cicatricial stenosis, somewhat cone-shaped, was found in the upper part of the larynx, and a small probe only could be passed through into the trachea. The cicatrix was divided with Heryng's intralaryngeal knife, and a second largest size O'Dwyer's intubation tube introduced, the smaller sizes being expelled (probably owing to the shape of the opening); the tracheotomy tube was then removed, and the wound healed rapidly. Nineteen days later the intubation tube was removed, but, as asphyxia was threatened, the largest size O'Dwyer's tube was inserted. It was intended to remove this in a fortnight, and then, if it could not be dispensed with, to do a thyrotomy and excise the cicatricial bands. However, an attack of typhoid fever developed, and the tube was allowed to remain *in situ* for two months, when it was removed without any embarrassment to respiration. The voice was improving when the case was reported.—*Intercolonial Medical Journal of Australia*, July 20, 1896.

#### THE OPERATIVE TREATMENT OF VARI- COSE VEINS, WITH ESPECIAL REF- ERENCE TO A MODIFICATION OF TRENDELENBERG'S OPERATION.

MOORE (*Intercolonial Medical Journal of Australia*, July 20, 1896) sets forth a method of his which differs from that practiced by Trendelenberg, in:

(a) The site of the ligature. As the operation aims at preventing any reflux of blood into the vena saphena and its branches, this object is surely much better attained by ligating above the junction of any of the branches belonging to the lower extremity; if the ligature is applied low in the thigh, this object is not attained with the same certainty. Further, there appears to be no objection, theoretical or practical, to placing the ligature near the groin.

(b) The direction of the incision. The almost transverse direction of the incision



follows as a matter of course the adoption of the high site of ligature, for near the groin the lines of cleavage of the skin run almost transversely. The edges of this incision come into apposition much more readily than do those of a longitudinal incision. The vein also is more easily found through an incision running directly across it.

(c) The ligature material. Silk would seem to be much more suitable than any animal ligature. Only a fine thread is required, and it can easily and certainly be rendered aseptic. When silk is used, it is not necessary to tie two ligatures and divide the vein, though this practice should be adopted as a rule. Being more certainly made aseptic, and less liable to give way, silk is much the more suitable material in out-patient practice, where the patients are allowed to go home and are thus out of reach.

(d) The dressing. Boric powder with a little absorbent wool, kept in place by colloidion, forms a very comfortable, dry, aseptic dressing, much better than any bandage.

(e) Allowing the patient to go home. This proceeding the writer scarcely cares to advocate, though he is quite prepared to defend it. If there were unlimited beds, then such cases might no doubt be treated as in-patients, with less anxiety to the surgeon.

The fifteen cases treated in the out-patient department have done as well as could be desired, and the operation certainly enlarges the province of the out-patient surgeon.

#### PERINEAL PROSTATECTOMY.

E. NEINHAUS (clinic of Socin, Basel), after a very thorough review of the different methods of treating enlargement of the prostate, all of which have proven more or less unsatisfactory, presents the histories of eleven cases of perineal prostatectomy performed by Socin, Schede, and Küster. Schede and Küster operated by Von Dittel's method, which consists in removing more or less of the prostate through an incision starting from the coccyx, extending along the median line to the anus, then turning to the right of the anus by a semicircular incision and terminating in the perineal raphe in front of the anus. The rectum is torn away from the prostate, and the field of operation is brought well into view. The wound is treated by the open method.

Socin modified the operation in that his incision began at the tuberosity of the ischium on one side, extended forward in a curved line to the bulb of the urethra, then

backward and outward to the tuberosity of the ischium on opposite side (the transverse curved incision of Kocher). This incision exposed the whole of the prostate and allowed the rectum and urethra to be well drawn out of the way.

None of the eleven patients operated upon died of the operation. Two died of carcinoma which was not diagnosed at the time of the operation, and one died of hemorrhage and sepsis two years after.

Spontaneous micturition returned in every case, and continued in all but one. Only six of the cases can be considered as cured, since the remainder have been troubled with persistent fistula due to accidental injury to the urethra or rectum.

On the whole the results of lateral prostatectomy have not been very brilliant, but it must be remembered that the operation has been undertaken in only the worst cases. The statistics will undoubtedly improve when the operation is performed on more favorable cases. It is indicated in cases in which there is retention of urine from general enlargement of the gland or enlargement of one or both of the lateral lobes. An enlarged or pedunculated middle lobe can best be removed by suprapubic cystotomy.

In order to be successful the operation must be undertaken before the mucous membrane of the bladder is affected with important catarrhal changes, and before the tone of the muscle is entirely lost; otherwise the bladder will not be able to expel the urine after the obstruction to its discharge has been removed.

Mention is made of the numerous cases treated successfully by castration: the author thinks there is no doubt about the efficacy of this method in some cases, but brings up the question whether all forms of prostatic hypertrophy can be influenced thereby; *a priori* it seems very doubtful.—*Beiträge zur Klinische Chirurgie*, band xiv, heft 2; *Annals of Surgery*, December, 1896.

#### SURGICAL TREATMENT OF SPASMODIC TORTICOLLIS BY KOCHER'S METHOD.

QUERVAIN (*La Semaine Médicale*, 1896, No. 51), as the result of a statistical study, finds that operations on the spinal accessory nerve designed to cure spasmodic torticollis are mostly abortive. Among sixty-one collected cases, including ligature, stretching, avulsion, and resection, there were only twelve cures; twenty-two cases were improved. Kocher,

discouraged by the results of seven operations on the accessory nerve, has adopted a method of his own since 1884. This consists of complete cross-section of all the involved muscles. The results are far better than those reported from any other method. In all, twelve cases were treated. Each of these had been subject to a thorough, prolonged and persistent palliative treatment, including medicaments, massage, hydrotherapy, electricity, and orthopedic appliances. This cross-section of the muscles did not cause atrophy and paralysis, nor did it materially interfere with the mobility of the head. Of the twelve cases operated on, seven were definitely cured; the remaining five are still under a prolonged manipulative and gymnastic treatment which Kocher considers absolutely essential after his operation.

The somewhat naive explanation given as to the rationale of the cure is that the nerve-centre (irritation of which is undoubtedly the cause of torticollis in the great majority of cases), on sending out its impulse to the muscles, is so discouraged at the lack of result that it ceases to trouble in this way.

#### THE ANTISEPTIC VALUE OF IODOFORM IN SURGERY.

LOMRY (*Archiv für Klin. Chir.*, bd. liii, heft 4) says:

If wounds inflicted on dogs or guinea-pigs are infected with staphylococci or streptococci and are treated with iodoform, they heal more quickly and secrete less than those which are not thus treated. Iodoform lessens the virulence of these micro-organisms; neutralizes or destroys the microbe toxins, but not completely; it does not lessen the ameboid motion or the phagocytosis of the white blood-corpuscles.

[This seems faint praise for a drug which is so foul to the smell and so extremely poisonous.—ED.]

#### PLUGGING OF BONE-CAVITIES WITH ANTISEPTIC SUBSTANCES.

ISCH-WALL and REYNIER state that salol, which is soluble at 40°C., may be melted and poured into bony cavities, where it moulds itself accurately to the space requiring filling and becomes practically vitreous in consistence. Liquid salol possesses the advantage of dissolving iodoform. Thus can be formed an excellent mastic with which to plug small

osseous cavities that have been carefully cleansed and disinfected. The authors state that they have employed this method in thirty cases, with excellent results except where, because of the depth of the lesions, the cleaning out of the bone was not thorough.

#### A METHOD WHEREBY RUSTING OF INSTRUMENTS DURING STERILIZATION IS PREVENTED.

LEVAI (*Wiener Klin. Rundschau*, 1896, No. 31), after an experimental investigation as to the rusting of instruments, finds that the process is due to carbonic acid contained in water, and that it is not absolutely prevented by the addition of carbonate of soda, as recommended by Schimmelbusch. He states that rusting can be greatly lessened by first boiling the water before placing instruments in it, since thus the greater part of the carbonic acid is expelled. The most efficient means he finds is to add to the boiled water 0.25 per cent. of sodium hydrate, pure, containing no sulphur. During the operation the instrument should lie in the solution thus prepared. Sharp knives placed in this solution do not lose their edge in the faintest degree.

#### THE TREATMENT OF EXTRA-UTERINE PREGNANCY, RUPTURED IN THE EARLY MONTHS, BY VAGINAL PUNCTURE AND DRAINAGE.

The above is the title of a valuable contribution to this subject by KELLY, of Johns Hopkins (*American Gynecological and Obstetrical Journal*, August, 1896).

Cases suitable for Kelly's mode of treatment are the extra-uterine pregnancies which rupture in the early months, including therefore the vast majority of all cases. Since he has begun to follow this mode of treatment, all the cases which have come to him have been of this class.

Vaginal puncture and drainage is not a suitable plan of treatment in an unruptured extra-uterine pregnancy, in a recently ruptured one, or in advanced extra-uterine pregnancy.

Kelly's operation is not to be compared with the removal per vaginam of the dead fetus presenting at the vaginal vault (elytrotomy) in an advanced pregnancy, followed by drainage of the sac, nor is it to be compared with cases in which suppuration of the sac has occurred, which belong rather to the pelvic abscesses, although both classes of

cases he treats in precisely the same way. These cases are referred to by Hermann, who states that when the effusion of blood is followed by pyrexia the indications for excision of the vagina are the same as those in hematocele from any other cause, but when interference is called for to arrest hemorrhage soon after rupture has taken place, abdominal section is more likely to succeed than vaginal.

The class of cases to which the writer refers are not clearly defined by Hermann, and are the commonest of all; they are those in which a succession of ruptures has occurred, each time adding to the accumulation of clots in the abdomen. He has only included in his list one suppurative case with clots, and that simply for the purpose of reporting all the cases he has had.

In the *American Gynecological and Obstetrical Journal* (May, 1896), Dr. G. W. Reynolds reports a case of extra-uterine pregnancy which he felt certain had ruptured into the broad ligament, and in which he removed a three months' fetus with placenta and cord by a vaginal incision. A gauze drain was inserted, and the patient rapidly recovered.

Kelly pursues the following method in performing this operation:

1. After a careful consideration of the history, a thorough bimanual examination of the extra-uterine sac is made, both per vaginam and per rectum, in order to determine its exact relationship to the vaginal vault.

2. The patient is then put into the lithotomy position, and the vagina thoroughly cleansed.

3. The posterior lip of the cervix is caught with tenaculum forceps and drawn forward.

4. With the index finger resting on the prominent part of the sac posterior to the cervix to act as a guide, a pair of sharp-pointed scissors is thrust through the septum into the sac, taking care to follow the line of the axis of the pelvis. If this precaution is not taken, there is risk of puncturing the rectum by carrying the points too far back. If the rectum lies near to the vaginal vault, it is best to protect it from injury by the middle finger resting on the sac in the bowel and the index finger on the vaginal vault, thus straddling the perineum. If the sac does not lie so close to the vaginal vault as to be easily felt there, it may often be brought into relationship with it by the pressure of an assistant's hand above, when the puncture may be made.

5. When the scissors have entered the sac,

they are spread and withdrawn wide open. This makes the hole larger. A uterine dilator is then introduced, and the opening stretched to 1.3 to 3.5 centimeters in diameter.

6. As soon as the scissors are spread, a little stream of dark telltale blood runs down the vagina, confirming the diagnosis. After dilating the opening, the sac is emptied of blood-clots, placenta, and fetus, by the index and middle fingers. This is done with extreme care, using the fingers within the sac, and assisting their action by the other hand employed outside to make counter-pressure through the abdominal wall. In this way the sac is freely handled, its various parts kept within reach, clots are detached, and the contents removed until nothing but a shell remains—all without opening the peritoneal cavity.

Should the peritoneum be opened accidentally, no harm will result if the sac is well cleaned out and efficient drainage used.

If the fingers possess a good tactile sense, the rough limiting walls of the sac and the adhering clots will be easily differentiated. I have several times recognized the firm, round tube-casts, and brought them out broken up; the rounded sides of the pieces showed plainly that they had formed part of a cylinder.

7. If the cylinder is well closed off from the peritoneum, it is a help in bringing away the blood-clots to wash it out at intervals with a normal salt solution; I do this also at the end of the cleansing process, before packing.

8. The sac is then drained by a strip of plain or washed iodoform gauze, about three centimeters wide, stuffed loosely into its cavity with a packer. The gauze must fit loosely, so as not to stop the outward flow.

9. The gauze is left in for three or four days, during which time there may be a free serous flow. Then day by day it is withdrawn, and in from five to seven days removed altogether. The sac is daily washed out with a boric-acid solution, putting a piece of gauze into the opening each time to keep it from closing too fast.

In this way the sac contracts and closes in from two to six weeks, often without any evident suppuration, and in all cases without any marked purulent discharge.

In four cases out of the thirteen the writer opened the abdomen before evacuating and draining the sac—by the vagina in three of them, and above Poupart's ligament in one. He did this in the first two instances expecting

to enucleate the mass by way of the abdomen, but, finding that this would greatly endanger the patient's life, he turned to the vaginal route. With his present established technique he finds it but rarely necessary to open the abdomen. He did this, however, in one of his most recent cases because the history of rupture was so negative, and the encysted mass of blood at the left uterine cornu formed such a well defined tumor, that he felt doubtful whether it might not be an unruptured extra-uterine pregnancy. On opening the abdomen and finding the sac well covered in by sigmoid, rectal, and vesical adhesions, he evacuated it per vaginam, and drained it as usual.

The one great advantage of this operation is that, in accordance with the most recent and best gynecological practice, none of the pelvic structures are removed while the hemorrhage is opened, evacuated, and drained. All Kelly's patients have recovered perfect health, and there have been no untoward sequelæ.

A further advantage of great importance is the fact that a serious abdominal operation is often avoided, and the adhesions walling the sac in are let alone, while the sac itself is simply, quickly, and safely opened by way of the vagina.

In several of his cases the patients were in such condition that they could not have survived any prolonged abdominal operation. The vaginal operation in this way reduces the mortality.

The dangers of the operation are (a) the possibility of a mistaken diagnosis, (b) the risk of opening the peritoneum, and (c) the risk of a fatal hemorrhage, as well as (d) the liability to sepsis through the open vaginal vault.

Although the author made a correct diagnosis of extra-uterine pregnancy in each of the thirteen cases here reported, he diagnosed this condition in two cases where it did not exist. One was a dermoid cyst about as big as the fist, which was punctured, evacuated, and removed; and the other was a pelvic abscess, which was also opened and drained. Both cases recovered.

Hemorrhage is the most serious risk incurred, and the query naturally arises why it does not more frequently follow the opening of the sac, the detachment of the clots, and the relief of the pressure they afford the sac-walls. The answer to this must be that the vessels are filled with firm thrombi, and all tendency to active bleeding is past.

In the history of one patient who bled persistently from the vaginal puncture, necessitating the immediate removal of the sac by the abdomen, there was nothing to indicate anything different from the five preceding or the six following cases. She was forty-one years old, the mother of six children, the youngest two and a half years old. About three months before she was seen, at a menstrual period she was suddenly seized with a sharp pain in the lower abdomen, and became very faint, without losing consciousness. There was a mere "show" at the time, but after the pain she had a free bloody discharge for four weeks. The abdomen was enlarged and tender, and she had three attacks after the first, and was compelled to go to bed each time. The writer found her greatly debilitated and anemic, with constipation, and a pulse of 100. A large globular mass filled both sides of the pelvis, being especially prominent on the right side. The sac was punctured by way of the vagina, and the clotted blood and a three-months' fetus removed. This was followed by a free discharge of bright arterial blood, which oozed persistently out of the incision, and could not be controlled by packing. The abdomen was at once opened. The tubes and ovaries were so closely matted together with the uterus, that they were removed by hysterо-salpingo-oöphorectomy, bringing up the ectopic sac with its placenta. Seven hundred cubic centimeters of salt solution were infused into the cellular tissue to make up the loss of volume in the circulation. The patient was discharged on the twenty-ninth day, completely recovered.

On account of the possibility of this accident, the writer insists that the operator should always be prepared to open the abdomen if necessary when he undertakes to evacuate the sac by a vaginal opening.

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## Reviews.

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TWENTIETH-CENTURY PRACTICE OF MEDICINE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M. D. In Twenty Volumes. Volume VII: Diseases of the Respiratory Organs, the Blood, and Functional Sexual Disorders.

New York: William Wood & Co., 1896.

As our readers are already aware, from the review in a recent number of the THERAPEUTIC GAZETTE, Volume VIII of the Twentieth Century Practice of Medicine appeared be-

fore Volume VII, which is now under review, owing to the fact that certain delays which could not be avoided prevented the prompt appearance of the volumes in their regular order.

Because of the contents of this volume, we have looked forward to its publication with very considerable interest, for, while some of the subjects are well worn and are pretty thoroughly understood by the profession in general, others have advanced through research with such great strides that an author has ample opportunity of making what may be considered almost an original contribution to medical literature by giving a good summary of our present knowledge. We preface what we are going to say in regard to the individual articles by stating that we can repeat all the words of praise for this volume which we have given to its predecessors; indeed, we think that in some respects it surpasses most of the earlier volumes. That the editor has had some difficulty in obtaining from his various contributors their manuscripts with the promptness which was desirable, is evident from the classification and arrangement which he has been forced to adopt. Thus, the classification in one volume of diseases of the respiratory organs, of the blood, and the functional sexual disorders, is one which, of course, is not justified by any plan based upon scientific medicine.

The first article in Volume VII, upon Diseases of the Pleura, is written by Dr. Whitney, of Denver, and includes a consideration not only of these pathological states, but also of their various associated conditions and sequelæ. It extends, with its bibliography, over 126 pages, and is a good summing up of our knowledge concerning the topics of which it treats, although in one or two instances some of the recent literature upon this subject has apparently been overlooked: very little attention is given, for example, to the condition of pulsating pleurisy.

The article upon Asthma, which covers fifty-three pages, is by Franz Riegel, of Giesen, and is very German in its characteristics. It contains nothing new, that we have been able to find, in regard to the etiology, pathology, or treatment of this troublesome affection. A good illustration of Cürschmann's spirals may be found upon page 147.

The next article, that upon Diseases of the Mediastinum, by E. Main of Paris, is by long odds the poorest of any that we have seen contributed to the eight volumes so far issued. Not only does it only cover seven and a half

pages—which perhaps is not too little—but it shows no evidence of examination of any literature upon this subject, while much of the therapeutics which are advised will prove perfectly futile in the conditions for which treatment is recommended. It seems to us that this article could have been left out of the volume with advantage.

The next article, however, is one which amply compensates for any fault which can be found in its predecessor. It is by Dr. Alfred Stengel, upon Diseases of the Blood. In the discussion of his subject Dr. Stengel contributes no less than 290 printed pages, and therefore his article is a very large part of the volume. After a careful examination of it we find that it demonstrates: first, that its author has a thorough acquaintance with the modern literature concerning the blood; and, second, that he has had ample practical experience in the examination of this important liquid. Some of the illustrations must be considered unusually good, particularly when we take into consideration the fact that none of them are colored. Stengel's article will not only bring a great deal of credit to its author, but will do much in aiding in the sale of this valuable series.

Drs. Cushing and Cumston contribute the article upon the Disorders of Menstruation. We find nothing particularly noteworthy in this article, save that it is provided with a sufficient number of prescriptions to show that the authors are writing for practicing physicians who often desire formulas for the administration of remedies recommended in the text.

The article upon Functional Disorders of the Male Sexual Organs, by Dr. Allen, is a fairly good one and presents the subject quite exhaustively.

The last article in the volume, which covers 120 pages and of which no mention is made on the title page, is upon the Chemical and Microscopical Examination of the Urine, a subject certainly not in any way connected with the other subjects we have named. It is, however, a good summary of the literature of urine-examination, though it covers little ground that is not gone over in most of the good manuals devoted to the subject.

A REFERENCE BOOK OF PRACTICAL THERAPEUTICS.  
By Various Authors. Edited by Frank P. Foster, M.D.  
In two volumes. Volume I.

New York: D. Appleton & Co., 1896.

We are told in the preface of this volume that the editor's leading idea has been to

make the matter which it contains pre-eminently serviceable to the practicing physician, and that for this reason only so much of the mineralogical, chemical, botanical and historical relations of the various drugs have been given as are absolutely necessary for the thorough understanding of the uses of each remedy. We are also informed that the book is not intended to take the place of treatises upon materia medica and therapeutics, but has been published for the purpose of supplying the practicing physician with a summary of the therapeutic facts which have been gathered together during the last few years. These facts, it is believed, are many of them valuable, and yet are so scattered as not to be readily available to the average practitioner. With this opinion, however, we cannot coincide, for almost every one of the ordinary text-books on therapeutics which has reached advanced editions contains very accurate information concerning the latest therapeutic advances. The editor has also thought it wise to include very little information concerning the physiological action of the remedies which are considered.

The text of the volume is printed in double columns, and the subjects are arranged alphabetically, the present volume extending from A to M. No index is published in this volume, but we are told that an index of remedies and diseases will be published in the second or final volume.

It will be seen, therefore, that this book may be considered as the first volume of an Encyclopedic Therapeutic Dictionary.

Of the thirty-three contributors, sixteen are from New York, the remainder consisting of one representative each from San Francisco, Baltimore, Buffalo, Washington, Cincinnati, and other cities. There are two writers from Philadelphia, Dr. S. Solis Cohen and Dr. Burchard, the latter writing upon subjects connected with dentistry.

We have looked over the book pretty thoroughly and find that the editors have left out but little that is of value. In some places, it is true, the writers have been satisfied to gather their information from abstracts published in the columns of various journals, and have not consulted the original articles themselves. The result of this is that there are some inaccuracies in quotation and in statement. Again, we notice that in one or two instances the names of journals that are mentioned by way of reference are given a wrong title. Thus, on page 84 the experiments of Chantemesse and Widai are cred-

ited to the *New York Therapeutic Gazette*, a publication which does not exist. We presume the *New York Therapeutic Review* was intended. Further, the quotation is from an abstract and not from the original article. If we are not much mistaken too, the name of Widai is wrongly spelled in the text, which would not have been the case had the original article been consulted. Again in connection with the serum-therapy of syphilis, we notice that the name of Feulard is spelled Fenlard.

We also think it is a mistake to include in a book of this character combinations of various medicinal substances which are proprietary and sold under copyright or trademarks, as is done in a number of places in the volume.

Aside from these irregularities, there are one or two errors in regard to therapeutics and the physiological action of drugs, to which we think attention may justly be called. Thus, the statement on page 341 that death from digitalis poisoning results from cessation of the heart's action in systole caused by exhaustion of the motor ganglia or by the tetanizing effect upon the cardiac muscle, is certainly incorrect for the heart of a mammal. Further, we do not believe that exhaustion of the motor ganglia of the heart would result in systolic spasm of that organ. In man and the higher animals the condition of the heart after death from digitalis poisoning is that of diastole.

Again, we do not believe the profession will endorse the opinion expressed that the influence of digitalis in aortic stenosis is generally injurious. On the contrary, many physicians consider that in aortic stenosis digitalis is one of the most important remedies we have in aiding the heart to overcome the obstruction. Furthermore, the use of the word "or" instead of "and" makes the text read as if aortic stenosis and insufficiency were one and the same thing.

The statement made on page 342, that digitalis is eminently the medicine for a dilated rather than for a weak heart, is not, in our opinion, exactly correct. While there can be no doubt that in a certain number of cases of cardiac dilatation digitalis is most efficient, it is also certain that a weak heart, if such a thing exists aside from that produced by dilatation and fatty degeneration, is also benefited by this drug.

In the article on Jaborandi we find that this drug is heartily recommended in the treatment of uremia, but the danger of its

employment under these circumstances is not sufficiently emphasized.

We notice that in several articles additional information is given in brackets. Whether these brackets mean that this information has been provided by the chief editor in addition to that provided by the writer of the individual article, we do not know, as no explanation of the brackets is given either in the preface or elsewhere in the volume.

In conclusion, we may state that the small type and double-column arrangement has enabled the editor to compress within the 652 pages of Volume I an immense amount of information, much of which will doubtless be of very great value to practicing physicians, particularly those who, by lack of reading current medical literature or obtaining standard text-books on the subject, have unconsciously fallen behind in knowledge concerning the use of drugs.

**A TREATISE ON OBSTETRICS, FOR STUDENTS AND PRACTITIONERS OF MEDICINE.** By Edward P. Davis, A.M., M.D. Copiously illustrated with engravings and colored plates.

Philadelphia and New York: Lea Brothers & Co., 1896.

This new work on Obstetrics is a volume of 553 pages, including the index, and is based upon the author's experience as a practitioner and teacher of practical obstetrics. We presume that it was written to aid him in carrying out the successful plan of teaching which he has followed for some years past, and it will place in the hands of his and many other students the facts which he believes are most necessary for practicing physicians to know in connection with this branch of medicine. He has also recognized the importance of accompanying his descriptions in the text by a very large number of photographic illustrations taken from life, which seem to bring the text in closer contact with actual practice than is usual in books on this subject which are illustrated solely with diagrams. Not content to use only the ordinary photographic camera in preparing these illustrations, he has also included a number of Roentgen-ray pictures which give additional interest to his topic. The chapters in the book which strike us as being most valuable and carefully prepared are those devoted to labor and the development of the fetus, the first showing Dr. Davis's practical experience and familiarity with the teachings of both foreign and American obstetricians, and the second showing not only his touch but also that of Dr. Charles Dolley, who, we

are told in the preface, has aided in the preparation of this chapter.

While it is not possible to present a text-book which will contain a large amount of original matter upon a subject which has been so thoroughly written about as obstetrics, we think that Dr. Davis is to be congratulated upon having produced a book which includes nothing that can be considered as no longer of value, and which presents a summary of the best obstetric practice of the day in a concise and lucid manner.

**ESSENTIALS OF PHYSICAL DIAGNOSIS OF THE THORAX.**

By Arthur M. Corwin, A.M., M.D. Second Edition, revised and enlarged.

Philadelphia: W. B. Saunders, 1896.

This is a very small volume, printed on thin paper, and the text is arranged in a peculiar manner. We do not think we have ever seen a display of so many varieties of type, except in the catalogue of a type-foundry. The object of using these varieties has been to make headings and sub-headings, with the hope that by so doing the various facts connected with physical diagnosis may be the more readily picked up and absorbed by the student. The book is not one which will prove of value to the general practitioner, but, in connection with teaching by lecture or otherwise, will doubtless aid the student very materially. Outside of the class-room we doubt if it can be generally employed.

**THE PROCEEDINGS OF THE WEST LONDON CHIRURGICAL SOCIETY.** Seventh Volume. Session of 1894-95.

Edited by Richard Lake and L. A. Bidwell.

London: John Bale & Sons, 1896.

This is a small octavo volume of about 150 pages, containing a record of a number of interesting cases, extending all through the realm of medicine, which have been met with by the members of the Society whose proceedings it records; and the Society is evidently one composed of active clinicians who gather together rather with the object of making comparisons of their clinical experiences than of putting on record solely the results of scientific study and laboratory investigation.

**OBSTETRIC DIAGNOSIS AND TREATMENT.** By O. Shaffer, A.M., M.D. Wood's Medical Handbook Atlas Series.

New York: William Wood & Co., 1896.

We have already reviewed, in the columns of the *THERAPEUTIC GAZETTE*, the Atlas of Ophthalmology by Haab of Zurich, that upon the Nervous System by Jacob of Erlangen, that upon Fractures and Dislocations by

Helferich of Greifswald; and now we come to the fourth one of the series. This is a small octavo, like its predecessors, containing a very large number of colored cuts, many of which are very good and will aid the student, or physician in obtaining a clear idea of the physiological and pathological conditions which exist in pregnancy and parturition. It is, however, rather a volume for the teacher of obstetrics or for the active practitioner of this branch of medicine than for the student, unless he be far advanced in his studies. The ninth part of the book is devoted to a tabular arrangement of obstetric therapeutics, containing the name of the drug, its doses and its indications. The volume is distinctly German in its teaching and style, from beginning to end, and mirrors, as we suppose it is intended to, the personal teaching of its author.

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## Correspondence.

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### LONDON LETTER.

BY ST. CLAIR THOMSON, M.D., M.R.C.P., F.R.C.S.

For some months past I seem to have had to perform the melancholy task of commencing my letter with a necrology. Certainly there has lately been quite a holocaust of our distinguished seniors, and within a very short time we have had to lament Erichsen, George Johnson, George Humphrey, Savory, George Harley, and now in Benjamin Ward Richardson we lose, if not the most distinguished, at least the most many-sided, of our elder physicians. His death was sudden and took every one by surprise, for he was not only an ardent advocate of temperance, exercise, and hygiene, but himself carried out his principles so rigidly that we had, thoughtlessly perhaps, come to expect that he would live to be a "grand old man" of medicine, and an example of the correctness of his own views. But he died at the age of sixty-eight. On the day of his death he had just corrected the proofs of a forthcoming work of an autobiographical character to be entitled "Memories and Ideas," when he lost consciousness and never rallied. It would take too much space if I were to give even a catalogue of the leading features of his active life. In medicine alone he did more than enough to insure himself a reputation as a scientific worker; but the strictly professional field was all too small for his ceaseless energy. He was a pioneer of Public Health, at a date, too, when the cry of the

sanitarian was as the voice of one crying in the wilderness and the "Medical Officer of Health" was still in the womb of time. He founded the *Journal of Public Health and Sanitary Review*, and the well known aphorism which he placed on the title page—"National Health is National Wealth"—has become an established principle of social science. For the past twelve years he edited a quarterly magazine entitled the *Asclepiad*, full of original research, criticism, and quaint medical lore. From cover to cover he wrote every word with his own pen, and in themselves these twelve volumes are a testimony of his versatility. But neither medicine, literature, nor sanitation were sufficient for his many-sidedness. He was an ardent reformer, a temperance propagandist, a novelist, and somewhat of a transcendentalist philosopher; he was a cyclist and an authority on cycling; he lectured on dress reform; he designed the lethal chamber in the Home for Lost Dogs, where stray mongrels are painlessly put to death; he pleaded for the reform of our slaughter houses. His studies on anesthetics are well known, as well as his invention of local anesthesia by means of the ether spray; he even simplified and improved the method of embalming. But this brief catalogue of his work is getting too long. His versatility was too various to confine itself within any academic bounds, and he was never connected with any of the large teaching hospitals of London; his personal character was kindly, frank, generous, and humorous, and he was one of the most interesting specimens of wide learning in an age when we all seem to be threatened with mental myopia as a result of the limitation we are putting on our intellectual horizon.

Last month I epitomized Mr. Frederick Treves' methods of surgical procedure in abdominal operations; now under the title of "Cleansing and Cleanliness in Abdominal Surgery" we have Mr. Lawson Tait's views on the matter included under that title—and on a good deal else besides. For the celebrated Birmingham surgeon is in one respect like Mr. Dick, only instead of Charles the First's head it is Listerism which he is unable to keep out of his effusions. Mr. Tait, like the Scotch carter in the story, generally "sweers at lairge" against Listerism and antisepticism, making light of microbes, and becoming especially gleeful over the fact that Lister himself has renounced the spray as quite unnecessary. I had always understood that Mr. Tait was the apostle of cleanliness



pure and simple, and certainly the impression is abroad that he employs no antiseptic and no other purifying agents than soap and water. It is therefore with considerable interest that we read the following in the *Medical Press* of November 25th: "All instruments with sliding tubes, screws, or bended joints ought to be abandoned; every joint should be capable of being unshipped, and after every operation every instrument should be scrubbed with raw turpentine and a brush, and then well washed with soap and water. If this be done, immersion in cold tap water for the next operation is all that is wanted." So much for the purification of his instruments; now for the cleaning of his hands: "I do not fear the ordinary germ poisons at all," he writes, "but still I take the precaution of keeping my nails short and clean, and of washing my hands in raw turpentine the last thing before performing any operation, and then washing off the turpentine by ordinary soap and water." So, after all the redoubtable opponent of antisepticism turns out to be as Listerian as any of us! If we turn to the work on "Wounds, Ulcers, and Abscesses," by Professor Watson Cheyne, Lister's old interne, for many years his private assistant, and now the occupant of his chair of Surgery in King's College Hospital, we will find a remarkable similarity in the directions he gives for the carrying out of antiseptic technique. About the only difference is that Mr. Watson Cheyne employs a five-per-cent. solution of carbolic lotion for cleansing his instruments, and adopts some extra precautions in the way of employing an antiseptic lotion instead of tap water to flush his wounds. By the way, there is something suggestive of Bob Acres in Mr. Tait's denial of fear of ordinary germ poisons, though still he takes precautions. Why Mr. Tait and his allies should find any satisfaction in running tilts against what they are pleased to fancy is "Listerism," it is difficult to understand: if it would appease them I dare say the world would be quite prepared to give up the term "Listerism," for truth need bear no man's name. They can call it cleanliness, or what they like; but they may rest assured that the virtues of surgical cleanliness were never appreciated until Lister came on the scene, and that their "surgical cleanliness" would have remained as empiric—and therefore as apt to frequent error—as any old wife's rule of thumb, if Lister and his disciples had not been able to explain by bacteriology the rationale of their surgical procedures.

That Mr. Tait should waste his time in charging at wind-mills is the more to be regretted when we see what good work he can do: in this same address, for instance, there is much of practical value. One of the conclusions he holds strongly is that the more patients are separated the better; hence for the greater part of his practice he uses a separate room for each patient. Here is another point learned in his wide experience: "The fourth night is the critical night with all save hysterectomies, and with them this is not so definitely fixed. If an ovariectomy is all right on the fifth morning the chances of her going wrong are small indeed. But if you 'pack' them they will have hematoceles, stitch abscesses, pulmonary complications, mumps, and all sorts of secondary troubles, in proportion far greater than if you kept them absolutely one in each room." With regard to this I would only ask, why mumps? It would be very interesting to know why mumps should develop if cases of abdominal operation are crowded together; I have never seen such a complication in wards which were more than crowded with other varieties of operation. "Cleanliness in surgery," says Mr. Tait, "may be divided into general and specific. General cleanliness, such as that close attention to cleansing wards and all in them, the cleanliness of all linen, bed-clothing, and the personal cleanliness of the surgeon and the members of his staff, are matters I need not waste time over." He then goes on to describe the "specific cleanliness," such as I have sketched it—a free use of soap and water and raw turpentine. He hails with satisfaction all the wonderful inventions and devices of the modern operating theatre for securing cleanliness, for that cleanliness can be secured only by the work of women, "and women in themselves have not the slightest idea of cleanliness save on the surface, and unless they belong to the really well-educated classes."

In connection with antiseptic dressings it has been suggested that much of the trouble consequent on burns could be avoided by the use of an "antiseptic cage." This is an arrangement like the leg cradle in miniature, by which the burned surface is simply kept exposed to the air but protected from direct contact, so that it can easily be inspected and treated with lotions or powders, while all the trouble consequent on the adhesion of dressings is avoided. The importance of leaving wounds as open as possible is shown by the results obtained by Mr. Treves in compound

fractures of the lower leg. Once the fracture is reduced and the wound thoroughly purified, he leaves it (protected by a cradle) entirely exposed to the air, the only dressing being a handful of iodoform which is placed on the wounded surface. This is not washed away with any lotion; if any of it gets displaced the nurse has directions to simply add a fresh teaspoonful of the powder. No dressing whatever is placed over it, and the leg is left open to the air day and night,—proper precautions being of course taken that neither the body nor the foot of the patient be chilled.

One can generally find something suggestive in any address given by Dr. Goodhart. He recently gave one on "The Fringes of Disease," and in it we find some practical suggestions and some interesting speculations. He is inclined to scout the belief of the surgeon that if he only gets a cancer early enough and sweeps wide enough he is likely to be able to eradicate it. He narrates, among other vague cases which were on the "fringe" of various definite diseases, a case of fever lasting over eight weeks, subsequent to confinement, but quite unconnected with uterine trouble, in which there was a daily paroxysm of intermittent fever. It was not malaria, and he inclined to the view that it was influenza. He prescribed Warburg's tincture, and in twenty-four hours the fever ceased. Amongst other fringes of disease he indicated how much we have to learn about the decay of teeth, the affections of the nails, and ulcerative stomatitis in children. He thinks that many "woolly states of the intellectual centres might possibly sometimes receive an enlivening influence by a timely resort to the thyroid extract." In another case a patient had not a single symptom of myxedema, but was so unwieldy in weight that she could not move about; in a short time, by taking thyroid extract, she had lost 14 lbs., while generally improving in health. He refers to indefinite states of anemia associated with swellings: "Not at all alike are these to what we know as myxedema in their outward appearance, and many of which have nothing to do with it, yet possibly as many of them are very rebellious to iron and such things as are the remedies for anemia, a mild myxedema may be worth considering. I never think of exophthalmic goitre without marshalling before my mind's eye a very wide fringe indeed,—a sphere of influence that has something to say in the production of some of a very varied class of cases, such as morbid flushing,

morbid flushing, morbid sweating, tachycardia, abdominal pulsation, general tremor, and other emotional disturbances too numerous to mention." Indeed, he seems to look very respectfully on the ill-humors of the thyroid body, and thinks that the day may come when our congested livers, delicate chests, and weak hearts may have to take a back seat as diagnostic refuges, while thyroid congestion, sluggish thyroid, and cirrhosis of the thyroid may be the shelters of the future.

Amongst the larger addresses of the last month there is an interesting one by Mr. Bruce Clarke on "Some Effects of a Lack of Muscular Development." He limited himself to the effects which accrue to the organs inside the abdominal walls from a neglect of proper physical exercises. He endorses much that was first brought to public notice by Glenard with reference to enteroptosis, and shows how this condition is consequent on a slackness and want of tone in the muscles of the abdominal walls. The protuberant belly of advanced or middle life also depends quite as much on the weakness of these muscles as it does on the deposit of fat on the omentum and mesenteries. Many cases of muscular weakness, especially in young people, are apt to escape recovery owing to the real condition being overlooked. One young girl of sixteen, although nearly five feet five inches in height, did not weigh 84 lbs., was so thin and wasted that she could hardly walk for ten minutes without weariness and dragging in the back and loins. She had been advised to go abroad and not to overdo exercise. Mr. Clarke regarded her case as one entirely of muscular weakness, and as the treatment he ordered her is typical of what he recommends I will quote it in his own words:

"It was at first difficult to persuade her that she was capable of doing anything; and when I prophesied that in a few months she would be able to row with her brothers I am sure I was not regarded as a man of truth; but my prophecy was fully justified, and to-day she is capable of hours of continuous exertion, and is in good hard condition, weighing upwards of ten stone.

"The plan which I adopted was as follows: I ordered, to start with, five minutes' exercise for certain muscles, beginning with those of the back and abdomen, which was carried out by her maid; the back and abdomen were gently rubbed with a stimulating liniment, to impart a sensation of warmth, and then she was assisted to get up from the re-

cumbent position and return to it again without the aid of her arms. By the end of a fortnight she could do this alone, at least once an hour for twelve hours. Her appetite improved, and she was anxious to try to walk. I had refused to allow walking at first, because if my interpretation of the symptoms was correct, her viscera ought not to be dragged on without support. As soon as she found what rapid progress she was making she entered very fully into the scheme of her treatment, and proved herself very ingenious in suggesting little exercises. At the end of six weeks she desired to try to row, and was permitted to do so. Shortly after this a rope and pulley was rigged up for her, and by altering the weights she had to raise, and working sometimes one hand, sometimes both, the muscles of her trunk and limbs increased rapidly in firmness, and her appetite improved amazingly, and with the growth of her muscles her lateral curvature disappeared, and all weariness about the back and loins came to an end.

"Since that time I have on a good many occasions prescribed analogous movements in consequence of pains about the abdomen and back, and always with considerable advantage, though never perhaps with so striking a result as in the case just related."

It will be seen that here we have our old, reliable, though much neglected friend, the movement cure again.

In an article on the medical treatment of tic douloureux by Dr. Ewart, "resistance movements" and Swedish gymnastics are strongly recommended as tonic measures, and as having the advantage of diverting energy from the oversensitive nervous mechanisms while raising the general nutrition; these movements should be preceded by massage, and should only be gradually increased. As regards the direct medicinal treatment Dr. Ewart suggests that alterative treatment may, in genuinely gouty cases, be specially directed to the gout. The salicylates, the benzoates, sulphur, chloride of ammonium, and taraxacum are available, but none of them probably equal in efficacy the salts of iodine and mercury, and particularly their combination in the proportions of twenty to thirty minims of the solution of the perchloride of mercury, and of six to ten grains or more of the iodide of potassium. The iodide may be tried alone, and should then be given in sufficient doses: its action seems to be promoted by the addition of tincture of iodine in doses of fifteen to thirty minims. He nar-

rates several cases which were sent to the surgeon for the express purpose of operation; but in all of them the evil day has by medicinal treatment been postponed, in some perhaps indefinitely.

It is such a common event for orators to indulge in a cheap sneer at medical progress that it is interesting to read that Dr. Wadham has expressed the opinion that in order to be a good physician "a man must be acquainted with the medical science of the day, even though it may be destined to become the medical nonsense of to-morrow."

To any one who desires to know something about the quacks and quack mixtures of this country let me recommend a small shilling book which has just been published by the Savoy Press, 115 Strand, W. C., and entitled "Exposures of Quackery." It might even be useful to leave it about in the waiting room of one's office, in the vague hope that, tract-like, its winged words might now and then fall on fruitful ground. In its pages are revealed the ingredients of many of the chief nostrums of the day. Here, for instance, is the analysis of Sequah's Prairie Flower. "This wonderful and world-renowned preparation," as its circular remarks, "has been in use amongst the Sioux, Cherokees, Comanches, Apaches, and several other tribes of North American Indians for hundreds of years." This remarkable prairie flower turns out to be aloes, and in order to procure it the brave redskin must have journeyed to either the East or West Indies, for I believe the aloes is unknown in the native territories of the States. And so on through the chief nostrums, the principal ingredient in many of them turning out to be aloes! Scattered through the book are some amusing stories. Here is one of Dickens and Thackeray. When Charles Dickens was in the height of his splendid career as a novelist, Holloway—the notorious quack "professor," inventor of Holloway's Pills and Ointment (the first chiefly aloes, the second lard and olive oil)—sent him a check for \$5000, with an intimation that he might consider it as his property if he would insert in an early number of one of his works, then coming out in a serial form, some reference to the Holloway patent medicines. Dickens, to his honor be it said, promptly and indignantly returned the proffered bribe. Upon hearing of this incident, Thackeray remarked, with the quick sarcasm of which he was master, that if he had been in Dickens' place he should have killed the villain of the novel with an overdose of Hol-

Holloway's Pills, and thus have secured the \$5000. On another occasion the hustling "Professor" did succeed in securing an introduction to Thackeray, at a large reunion of distinguished people. Thackeray appeared to understand the name imperfectly, and complimented the "Professor" in the same strain as he would have done in the case of a distinguished military officer. Holloway, confused, had to explain that he was not a general; but merely "Professor" Holloway. "Oh! well," observed Thackeray, "I made a very natural mistake, for you, too, must have killed thousands of people." This is the same Holloway who, having made his pile, endowed some institutions and was knighted by the Queen! One institution was at least appropriate, if intended as a delicate compliment to the people who believe that his pills and ointment will cure every human malady, viz., an asylum for lunatics.

However, in spite of exposure after exposure, the sale of so-called "patent medicines" goes bounding upwards like African gold shares during the booming season. The papers follow with their record of poisonings. Possibly the fact that it is not toxic is one of the reasons why aloes is such a safe "reef" to work.

The chair of Forensic Medicine in Edinburgh is about to become vacant through the retirement of Sir Douglas Maclagan. He is close on eighty years of age and is still lecturing. Sir Douglas comes of a distinguished family, his brother being Archbishop of York. The chair is in the patronage of the Crown and is worth \$4000 per annum.

And this reminds me that there is at present a great upheaval in the Athens of the North in the sphere of medical journalism. The old and well known *Edinburgh Medical Journal* has changed publishers; it will be continued with new editors from another publishing house. The opportunity has been taken for inaugurating a new journal with the more comprehensive title of *The Scottish Medical and Surgical Journal*. It will commence in January. Both journals announce a strong list of contributors, but it remains to be seen if they can maintain a high standard without having recourse to the proceedings of societies, and such like, to fill their pages. However, there is plenty of talent at present in Edinburgh, and plenty of young energy in the profession. A generous rivalry is the best stimulus, and the medical public will be the gainers.

Last month I wrote that we were on the

eve of the election of direct representatives to the Doctors' Parliament—otherwise the Medical Council. The results are just published and the three successful candidates for England are a London general practitioner, a Liverpool practitioner, and another London practitioner who is a distinguished leader writer on the staff of the *Lancet*. Rightly or wrongly, he has frequently been referred to as the *Lancet's* nominee. Anyhow, these three are undoubted Progressists and they will do their best to make things hum in the fossilizing Council, although they are in such a marked minority. Of the thirty members in the Council twenty-five are the nominees of the various universities and colleges of the Kingdom, while the profession is only allowed to have a voice directly in the return of the five direct representatives—three for England and Wales, and one each for Scotland and Ireland.

The chief journals have been jesting gently at the Hospital Reform Association, but I see that it is working ahead; if it should ever have any success I think it might claim to be the Jack-the-Giant-Killer of reforming associations. Our new Lord Mayor—it is an annual office—has suggested that he might inaugurate a large scheme next year to celebrate the sixtieth year of Queen Victoria's reign by starting a collection which would pay off the debts of the London hospitals. He has promptly been met by an avalanche of objectors. The provincial people object to being drained for metropolitan charities, while they have their local hospitals to support; and many point out that the numerous hospital committees are only waiting to get a few debts paid off in order to launch out into all sorts of wildcat schemes. In fact, it is suggested that they would at once get into debt in order to have some ground on which to found an appeal to the generous public for maintenance! There are very few institutions which do not put their indebtedness in the forefront of their claims for recognition, and in the rivalry between them it would not do for one to be left behind!

To revert for a moment to provincial schools—of which I am reminded by mentioning Edinburgh—I see that the progress of the medical school of Manchester, in connection with Owens College, is reported to be simply phenomenal; the entries this year are equal to several of the largest schools in London, and far surpass the majority of metropolitan entries. There can be little doubt that the chief cause of this is the

facilities afforded in Manchester for obtaining the degree of M.D. In London the average student can only hope to obtain the qualifications of M.R.C.S. and L.R.C.P., and that, too, with quite as hard work as is demanded by the provincial universities. This appears decidedly hard on the London schools, for although we have the University of London its tests are so stringent that only a minority can ever hope to obtain its degrees.

I have given you the result of the case of *Beatty vs. Cullingworth*, where a lady prosecuted a leading London gynecologist for—according to her story—removing an ovary against her wish. She lost her case, but now report has it that she has lodged an appeal, and it is possible that she may persevere, for it is rumored that the money for her case is forthcoming from a body of persons who hold the extreme view that a woman should rather die than submit to removal of the ovaries. Dr. Cullingworth's expenses were considerable, so much so that an appeal was made to his *confrères* to help him. It is gratifying to know that this appeal was so generously met that within a very few days the list was closed, and further subscriptions refused.

Our profession has been very much to the front lately in the law courts. Here is another case which illustrates some of the difficulties which we may have to deal with in a medico-ethical way. The facts are briefly as follows: A doctor was called to a certain house, and was asked by his employer to see and prescribe for her maid servant, and report to the employer upon the girl's state of health. In consequence of the doctor's report the servant was dismissed. She commenced an action for slander against the doctor, who finally, upon legal advice, settled the matter by paying her a solatium and the costs. This case came before the solicitors of a Medical Defense Society and they advise that a medical man paid by his employer to attend upon the servant of the employer (the servant not objecting to being attended by the doctor) might divulge to his employer the result of his attendance, that being a privileged communication; but if the report is made in the presence of, or to, any other person than the employer (as happened in the above instance), the report is not privileged, and the matter may become actionable. They further expressed an opinion that a doctor consulted by an employer in reference to the health of a servant should obtain the written consent of the servant before prescribing or

divulging the result of his examination to the employer in such cases where the servant might be likely to object to his doing so. All of which goes to show that to be called in to see a maid servant is no matter to be lightly undertaken. Many families think that the unfortunate medico should never charge for his attendance on the domestics. So he now has the chance of a double loss—no fee, and perhaps a "solatium" and costs!

Dr. Jameson, the hero of the Transvaal raid, has been allowed out of prison. He had an operation for hemorrhoids performed while in durance vile, but his general health became undermined and is said to be anything but satisfactory.

Sir William McCormac, the President of the College of Surgeons, is slowly recovering from a long attack of pleuro-pneumonia. A localized empyema has been discovered and he has had to undergo resection of a rib in order to give it vent.

It is regrettable to notice in the last report of the Medical Officer of Health for the City of London that reference has to be made to those "abominations known as sewer ventilators." The main sewers are merely ventilated by means of iron gratings in the roadways; the consequence is that under the best conditions the air in the streets—and it is only from the street-air that our houses are ventilated—is continually befouled by sewer-gas, while under certain conditions (as in summer-time, or when the sewers are being flushed) the streets become simply pestilential from the stench of sewer-air. The air in London is surely sufficiently fouled by our swarming population and our horses without ventilating our sewers underneath our very noses.

The well-known writer Sir Walter Besant has lately been giving an address and indulging in the most high-flown rhetoric androdomontade on the beauties of the metropolis. He must be personally a most insensitive person if his nose does not reveal to him the condition of things; he must be most unobservant if he does not see it for himself; his knowledge of London (he has written voluminously about the city) must be of the most superficial character; and his knowledge of foreign cities must be *nil* if he does not realize that London is being rapidly left behind in civic health and beauty. The streets are filthier and worse lighted than many continental cities and, in this respect, are not to be compared with most of our provincial towns. Our house-refuse is removed

only once a week, and for seven days we collect it in so-called "dust-bins" to putrefy in our areas; our drinking-water—drawn from the Thames after that river has received the sewage of several up-stream towns—has recently been condemned as dangerous; and now we take our walks through streets which are hardly more than open sewers! And this is the city Sir Walter Besant compares to a beautiful woman, only rather a large one! Certainly she is so large as to threaten to be quite unwieldy, and like Mr. Lawson Tait's patients she is decidedly in want of cleansing.

Our Local Government Board fulfills many of the functions which in another country would be carried out by the Ministry of Public Health. The question of the spread of disease by oysters comes into the sphere of action of the Board in question, and they have just issued a report on the subject which confirms many of the suspicions which have been cast on what the penny-a-liner likes to refer to as "the succulent bivalve." I have seen the report, though I cannot say I have read it; its voluminous character acted as a deterrent. But it appears so extensive and exhaustive that I think it is bound to attract considerable attention. The subject is considered from many points of view, not the least interesting being the comparison of the bacteriologists' researches with those of the sanitary engineers. The report shows that while there are some spots around our coasts where the oyster culture is carried on in beds which are above suspicion, there are many other regions where the oyster beds are polluted with sewage. Of course the whole oyster trade will suffer for the shortcomings of even a few places; and it is difficult to see how confidence is to be restored short of a government inspectorship. In this land of free trade in everything there is always great objection offered to a fresh interference by our grandmother, the State, in what has hitherto been private enterprise.

Less than a dozen cases of drainage of the pericardium have been recorded during the best part of a century. One has been added to the list by Mr. Betham Robinson. Part of the sixth rib had to be resected and two quarts as measured were evacuated; irrigation was decided against owing to the patient's feeble condition. Although rare, such cases when analyzed show a good proportion of recoveries, viz., five out of eight.

The expression "every rib in his body broken" was very nearly shown to be practi-

cally a possibility by a case recorded recently in the Clinical Society. At the post-mortem on a man who had been injured by an accident in a quarry, there were discovered the following fractures: on the left side, comminuted fractured end of clavicle; fracture of all the ribs, some of them being broken in two or more places; on the right side, single fracture third rib, sternal end; 4, 5, 6, 7, two fractures sternal end and angles; 8 and 9, single fractures. All the organs were normal with the exception of the right kidney, which showed a blood calculus in the lower part. Yet all these fractures occurred in a man of seventy-three years, who survived his accident for six weeks, and then died in a fit, apparently from syncope. One speaker at the subsequent debate pointed out that in old people he found that fractured ribs did better in the sitting posture than in bed; while another pointed out that the patient in question was a teetotaler, and that in abstainers cases of non-union or delayed union were rarely met with.

Preparations are in active progress for the meeting of the British Medical Association next year in Montreal; but I dare say you hear about the preparations on your side. The editor of the *Journal*, Mr. Ernest Hart, is in such indifferent health that he has given up his London house.

In my last letter there was a reference to creosote and guaiacol. It has been further recommended that they always be given on a full stomach, and their solution in alcohol or glycerin further diluted by mixing with some bland fluid such as milk. Pills and capsules, as being more likely to irritate the stomach when their undiluted contents are liberated, should be regarded with suspicion. In the treatment of chronic bronchitis, ipecacuanha has again been recommended when administered in the form of a spray; this is carried out by frequent administrations of ipecacuanha wine, three or four times a day. At each sitting one-half to one drachm of the drug is used, but the patient is directed not to swallow the wine. Amongst the occasional disadvantages were vomiting, and spasmodic dyspnea if the drug were used pure. It is not suitable for cases of asthma. The ipecacuanha spray is particularly suitable for cases of dyspnea with tenacious sputum. At the medical meeting where the above was advanced other drugs came in for their share of commendation in the treatment of chronic bronchitis: among these were cod-liver oil, carbonate of ammonium—which may be ad-

ministered in the form of the ammoniated tincture of iron and quinine—external applications of turpentine, and inhalations of oxygen. The effects of drugs on the secretion of the mucous membrane of the trachea was originally worked out on animals by Rossbach. These observations have recently been repeated by Dr. Calvert (*Journal of Physiology*, Aug. 21, 1896). The trachea of a cat under the influence of chloroform or urethane was opened, dried with blotting paper, and the interval of time before the surface became again covered with secretion ("interval of secretion") noted. The drug to be investigated was then slowly injected into a vein of the leg, and the interval of secretion again noted. Sodium carbonate increased the secretion; this result is directly opposed to Rossbach's observations. Iodide of potassium and emetine increased the secretion. Saponin, which is identical with senegin, the active principle of senega, in small doses did not increase the secretion, while in large doses it diminished it. Cold, as in the form of an ice-bag to the abdomen, led to an increased secretion, while heat, hot poultices, or fomentations applied to the abdomen, diminished the amount of secretion from the tracheal mucous membrane, but in neither was the effect as marked as in Rossbach's experiments.

How is the word enema pronounced in the States? I think I am safe in saying that on this side the majority of practitioners rest the accent on the second syllable and so render it *énéma*. If so, then use and wont have been ruled to be wrong; for the *British Medical Journal* quotes a long string of authorities to prove that the accent should be on the antepenultimate. Etymology is not the law of English pronunciation; we say *órator* and *sénator*, in defiance of the Latin quantity, because it is the tendency of our language to throw the accent as far back as possible consistently with ease of articulation. I need not, therefore, enter into all the reasons which cause our contemporary to give its weight to the pronunciation I have mentioned, but as I see that it quotes Billings' and Gould's Dictionaries in its favor I suppose we will in future be agreed on both sides of the Atlantic to speak of an *énéma*.

When I commenced this letter I had to refrain from a medical *cause célèbre* as it was still in the law courts; it is now over and both the trial and verdict have been the principal subject of discussion in medical circles. The following are the circumstances

of the case: One of the masters of the great public school of Harrow, by name Welsford, was attended by the school physician, a certain Dr. Stiven, for an illness which the latter said was an ordinary attack of indigestion. Acting on this diagnosis he prescribed aperients and then opiates, and ordered the patient's stomach to be vigorously rubbed. The patient continued to get worse, and when he and his anxious wife hinted at a consultation and suggested the word "appendicitis" they were scoffed at by the medical adviser for their scanty and dangerous knowledge of medicine. Still Mr. Welsford got no better, and when his brother arrived, the latter, being a physician, discovered a large lump in the groin and an undoubted case of appendicitis. Mr. Victor Horsley operated, and none too soon. Now we come to the part of the story where the *cause célèbre* commences to develop. Dr. Welsford was so indignant at the treatment his brother had received that he did not refrain from telling all and sundry, in and about Harrow, what he thought of the school doctor; he not only said what he thought, but—rash man—he also wrote it! Dr. Stiven took out an action for libel and slander against him, claiming heavy damages. After seven days' trial he obtained a verdict, but with only \$375 damages. I must explain the true inwardness of this verdict. Dr. Stiven's practice was large and lucrative and he claimed heavy damages as he said his position had been seriously injured by the defendant's slanders. The defendant pleaded justification. Now, what the jury's verdict amounts to is this: that Dr. Stiven's treatment was wrong, or that he was so little right that \$375 was quite enough for him; and that Dr. Welsford was wrong too in showing a want of good feeling and some malice in the way in which he spread his opinion of Dr. Stiven's incapacity. The case reminds me very much of a head-master of my own youth: whenever two boys came before him complaining of one another, he almost invariably settled the difficulty by "switching" both of them. All the daily papers are full of the morals to be drawn from this case; the *Times* says that it shows that you may send away your physician, but you must not publish the reason why you do so; the *Daily News* says that the verdict will help to curb the flow of personalities between members of the medical profession, who have hitherto been the licensed libertines of gossip. That's pretty severe on us. This great daily goes on to remark that the delightful flow

of conversation which is supposed to be so cheering in the sick-room must henceforth be checked; that only politicians in future can indulge in unbridled personalities; and that doctors will soon have to be as careful as editors. Most of the other papers have a side slap at us, and the general public appear to feel rather disgusted with our tendency to depreciate one another. And they are quite right, too.

#### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

This year's course of lectures on the History of Medicine, given by Professor Laboulbène at the Faculty of Medicine, is devoted to medical journalism. Though the first journalist, Théophraste Renaudot, to whom a statue has recently been erected in Paris, was a physician, the first real medical publication appeared in Paris twenty-six years after his death on the 28th of January, 1679, edited by Nicholas Bligny. The second medical journalist was Jean Paul de la Rogue, a native of Albi, a town in southern France, who edited a paper called *Journal de Médecine et Observations des plus Fameux Médecins, Chirurgiens et Naturalistes de l'Europe*, etc. (1683). This work met with but little success, and was followed by a *Journal de Médecine* in 1686, and in 1695 by *Le Progrès de la Médecine*, which appeared every month up to 1709.

In 1880, according to Professor Laboulbène's estimate, the medical journals in existence numbered 785. By 1895 they had increased in number to 1380, and even then it was doubtful whether all were known. The papers are, by countries, as follows:

France: Paris, 191; provinces and colonies, 95; a total of 286.

Europe: German Empire, 168; Italy, 140; Great Britain, 101; Russia, 86; Spain, 47; Austria, 45; Belgium, 31; Holland, 16; Switzerland, 13; Sweden and Norway, 9; Danubian principalities, 7; Turkey, 2; Greece, 2; a total of 667.

Asia: India, 25; China and Japan, 30; total, 55.

Africa, 2.

America: United States, 343; South American States, 17; Canada, 4; Mexico, 2; Brazil, 1; total, 367.

Oceanica, 3.

Death during the past year has been busy in the Faculty of Medicine of Paris, number-

ing among its victims three professors and four assistant professors. Less than a week ago a new name was added to the list, that of Dr. Straus, Professor of Experimental Pathology. Professor Straus was born at Dampach, in the province of Alsace. His medical studies were performed at Strasburg, where he was interne of the hospitals and assistant professor. This latter position he obtained in 1869, when but twenty-five years of age. The Franco-German war of 1870 induced him to leave his native place, and in 1874 he was named *chef de clinique* at the Paris Faculty of Medicine. Later he studied with Pasteur, and in 1882 went to Egypt with several others as a commission to study the cholera at that time prevalent there. When Vulpian died, Dr. Straus was appointed to succeed him, and devoted his course of lectures to bacteriological work. To Dr. Straus is owed the characteristic diagnostic test of glanders, the action on the testes of the guinea-pig. When this animal is inoculated with a secretion supposed to be due to glanders, the testes will in a few hours become enormously enlarged in case the diagnosis was correct. Last year Dr. Straus published an exhaustive treatise on tuberculosis and its bacillus. He was a member of the committee charged with editing the Annals of the Pasteur Institute, as well as of the Archives de Médecine Expérimentale et d'Anatomie Pathologique.

*La Semaine Médicale* publishes as a supplement to one of its recent numbers two maps giving, by means of shading, the relative proportion of physicians to population in France and in Paris. In Paris, naturally, the number of physicians is greatest in the neighborhood of the Chaussée d'Antin, the Madeleine, and the Champs Elysées, where it is from three to more than six per thousand. On the other hand, two of the outlying and poorer quarters of Paris, known as La Gare and Saint-Fargeau, contain less than one physician to every ten thousand. In the provinces it is seen at a glance that the presence of large cities brings up the proportion of their immediate neighborhood. Such influences being left to one side, it may be said that there are more physicians in the south than in the north of France. This would seem to be due to the fact that the south of France furnishes more medical students than the other regions. Outside of the large cities, the proportion would seem to be about four to five physicians to every ten thousand of the population. In some parts of Brittany, how-



ever, the proportion falls below one to every ten thousand; and in several other regions it remains at from one to two to every ten thousand. In Brittany, indeed, there are some cantons of 20,000 inhabitants without a physician. Of course, the trouble from which the French physicians suffer is the desire they all have to live in Paris, or in some large town at least. It is this which has caused so much irritation in regard to foreign physicians practicing in France. At a dinner given a short time ago by the Syndicate of French Physicians, the Dean of the Paris Faculty of Medicine, Dr. Bronardel, advised young French graduates to emigrate to Canada, where, he had been advised, there would be a good opening for them.

At a recent meeting of the Société de Chirurgie, Dr. Segond reported a curious case where a primary cancer of the liver was taken for a fibro-myoma of the uterus before the operation. Laparotomy having been performed, Dr. Segond discovered that the tumor was a prolongation of a hepatic tumor. As the pedicle was narrow, he decided to remove the mass after ligation. The patient died of shock twenty-four hours later. Only twelve other cases are known when primary cancer of the liver has been removed.

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#### DISLOCATION OF SHOULDER-JOINT.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Nearly all the text-books on surgery give three methods of reducing dislocations of the shoulder-joint, viz: the old method of extension (Cooper's), with the heel in the axilla as a fulcrum; Kocher's method by rotation and manipulation; and Malgaigne's method of outward or upward extension. It is the form of *outward* extension to which I wish to call attention.

About two years ago a large Irishman in a state of intoxication was brought to my office with a subcoracoid dislocation of about twelve hours' standing. As he was decidedly drunk, I tried extension of arm with heel in axilla without anesthesia, but without result. I then had him chloroformed to full anesthesia. During the administration of the anesthetic he got moved far away from the side of the lounge on which it was necessary for him to lie. I caught him by the dislocated arm just above elbow and endeavored to pull him nearer to me, and before I had moved him I was delighted to feel the head of the bone slip into its place.

Another opportunity was offered a few days since. A patient presented himself with a subglenoid dislocation of less than one hour's duration. He was chloroformed, and I seized his arm above the elbow, straightened it out at right-angles to the axis of the body, and then endeavored to pull or draw the patient directly toward me. The reduction was effected before I had moved the patient, a light man, from his position on the cot.

The principle is the same as that of Malgaigne, but the application (that of dragging the patient toward the operator) is different. No counter-extension has been required—the patient's weight has proved sufficient. I don't know that the procedure is applicable to backward luxations, but it has been eminently satisfactory in the cases described.

The method, in a few words, is this: Chloroform the patient, and then place him about eighteen inches from the side of the cot or bed on which the operator stands (this to prevent his being jerked off); then seize the arm above the elbow and raise it upward toward the patient's head until it is at a right-angle to the axis of his body, and pull the patient directly toward you as though you were going to pull him off the bed. This does the work before the patient is moved from his position.

Respectfully,

JOHN W. MECK, M.D.

CAMDEN, ARK.

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### Notes and Queries.

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#### THE FIRST OVARIOTOMY.

According to "Memorials of the Faculty of Physicians and Surgeons of Glasgow," by Alexander Duncan, the first ovariectomy was performed by Mr. Robert Houston, of Glasgow, in 1701, or more than a hundred years before the operation of Ephraim McDowell, of Kentucky, who is generally credited with being the earliest ovariectomist.

The following account of Houston's operation is quoted by the *Quarterly Medical Journal* from Mr. Duncan's book. It was published in the thirty-third volume of the *Philosophical Transactions*, London, 1733. Whether the claim that this was the first recorded ovariectomy is true or not, the account is interesting reading.

August, 1701, I was in the Country with a Patient, the Lady Anne Houston, Wife to Sir John Houston, Baronet, in the Shire of Renfrew, ten miles from Glasgow, North Britain. This charitable lady pressed me with

great Earnestness to visit a Tenant's Wife, who lay bed-ridden of an uncommon Disease, which no Physician or Surgeon who had seen her could give any Name to, or account for. She informed me that the ablest of that Country had forsaken her, and declared her incurable, so that I could lose no Reputation by the Result of my Endeavors.

In order to oblige this worthy lady, and in Compassion to the Distress of a poor Woman in so deplorable a Condition, deserted and given over on all sides, I went, determined to do everything in my Power for her Relief. She was in the 58th Year of her Age, her name was Margaret Millar. She inform'd me that her Midwife in her last lying-in at 45 Years old, having violently pulled away the Burthen, she was so very sensibly affected by a Pain, which then seized her in the left Side, between the Umbilicus and Groin, that she scarce ever had been free from it after, but that it had troubled her more or less during thirteen years together; that for two Years past she had been extremely uneasy, her Belly grew very large and a Difficulty of breathing increased continually upon her; insomuch that for the last six Months, she had scarce breathed at all but with the utmost Difficulty. That in all that Space of Time, having quite lost her Appetite, she had scarce eat so much as would nourish a sucking Child, and that for three Months together she had now been forced to lie Constantly on her Back, not daring to move at all, to one side or other.

This Tumor was grown to so monstrous a Bulk that it engrossed the whole left Side, from the Umbilicus to the Pubes, and stretched the Abdominal Muscles to so unequal a Degree that I don't remember ever to have seen the like in the whole Course of my Practice. It drew towards a Point. Her being so long confined to lie continually on her back having grievously excoriated her, added much to her Sufferings, which with want of Rest and Appetite, had wasted her to Skin and Bone, as the poor Woman herself expressed it. Indeed she needed not have told me so, my Eyes were too faithful Witnesses of her low and wretched Condition.

Scarce able to speak out, she told me that having heard much of my Success, she had strong Hopes of Relief, provided I would try at least and do something in pity of her Affliction. I answered her that I was willing, but afraid, in her low State, she would not have Strength to undergo a large incision; that in order effectually to relieve her, I must be obliged to lay open a great Part of her Belly, and remove the Cause of all that Swelling; she seemed not frightened, but heard me without Disorder, and as if inspired with sudden Courage, pressed and urged me to the Operation.

I drew (I must confess) almost all my Confidence from her unexpected Resolution, so that without loss of Time, I prepared what the Place would allow, and with an Imposthume Lancet laid open about an Inch, but finding nothing issue, I enlarged it to two Inches, and even then nothing came forth but a little thin yellowish Serum, so I ventured to lay it open about two inches more. I was not a little startled, after so large an Aperture to find only a glutinous Substance bung up the Orifice. All my difficulty was to remove it; I try'd my Probe, I endeavored with my Fingers, but all in vain; it was so slippery that it eluded every Touch, and the strongest hold I could take.

I wanted, in this place, almost everything necessary, but bethought myself of a very odd Instrument, yet as good as the best in its Consequence, because it answer'd the end propos'd. I took a strong Firr-Splinter, such as the Poor in that Country ordinarily used to burn instead of Candles; I wrapt about the End of this Splinter some loose Lint, and thrust it into the Wound, and by turning and winding it, I drew out some two Yards in Length of a Substance thicker than any Gellie, or rather like Glue that's fresh made and hung out to dry; the Breadth of it was above ten Inches; this was followed by nine full Quarts of such Matter, as I have met with in Steatoma-

tous and Atheromatous Tumors, with several Hydatides of various Sizes, containing a yellowish Serum, the least of 'em bigger than an Orange, with several large Pieces of membranes, which seem'd to be parts of the distended Ovary. Then I squeeze'd out all I could, and stitched up the Wound in three Places, almost equi-distant; I was obliged to make use of Lucatellus's Balsam, which was made by her Lady for the Use of the Poor; with this Balsam I cover'd a Pledget the whole Length of the Wound, and over that laid several Compresses, dipp'd in warm French Brandy, and because that I judg'd that the parts might have lost their Spring by so vast and so long a Distention, I dipt in the same Brandy a large Napkin four times folded, and applied it over all the Dressings, and within a couple of strong Towels which were also dipt, I swathed her round the Body, and then gave her about four ounces of the following Mixture which I had from her Lady:

℞ Aq. Menthae, 1 lb. fs.  
Aq. Cinnamoni fert., 1 lb. ifs.  
Syr. Diacodii, 3 vi. M.

The Cinnamon Water was drawn off from Canary and the best Cinnamon; indeed it was the finest and most fragrant Cinnamon Water I ever tasted; of this Mixture I ordered her two or three Spoonfuls four times a day.

Next morning I found her in a breathing Sweat, and she informed me with great Tokens of Joy, that she had not slept so much, nor found herself so well refresh'd, at any Time for three Months past. I carefully attended her once every Day, and as constantly dressed her Wound in same Manner as above, for about eight Days Together; I kept in the lower Part of the Wound a small Tent, which discharged some Serosities at every Dressing for four or five days. But Business calling me elsewhere, I left her, having first instructed her two Daughters (both Women, who carefully attended her) how to dress her Wound, and told 'em what Diet I thought most proper, enjoining 'em strictly to observe what I order'd.

Her chief Food was a strong Broth made of an old Cock, in each Porringer of which was one Spoonful of the Lady's Cinnamon Water; this was repeated four times a day, and gave her new Life and Spirits.

After three Weeks Absence I called at her House, and finding it shut up, was a little surpriz'd, but had not gone far before I was much more surpriz'd when I found her sitting wrapt up in Blankets giving Directions to some Laborers who were cutting down her Corn.

She amended apace to the Admiration of everybody thereabouts, recovered surprisingly, and lived in perfect Health from that time, which was in August, 1701, till October, 1714, when she died in ten Days' sickness.

Some pathological observations follow, and the paper finishes with a bibliography of ovarian tumors.

Houston's case of ovariectomy is notable, not only as being the first recorded, but for being performed in the absence of proper instruments and under apparently ludicrously unfavorable conditions, yet with a success which could not have been surpassed by a Keith or a Spencer Wells with all modern appliances and means aseptic and antiseptic to boot.

It is noteworthy that in this account no mention is made of the method of dealing with the pedicle, or of the time of removing the stitches from the abdominal wound.—*Boston Medical and Surgical Journal*, Nov. 5, 1896.

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## Original Communications.

### SOME IMPORTANT FACTS ABOUT CHLOROFORM.\*

By H. A. HARE, M.D.,

Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia.

The effects of chloroform upon the vital functions has been for many years a subject of hot dispute between various surgeons and pharmacologists. On the one hand has been the school originally led by Syme of Edinburgh, which has asserted that death or dan-

ger from chloroform lay in failure of the respiration and that this was the function to be watched while chloroform was being used; on the other hand the so-called London school has asserted that death arose from cardiac failure and that the pulse was the thing to be watched during the use of chloroform. The number of clinical and laboratory researches which have been carried out to determine which of these opinions was correct has been very great, both in England and in America, but it has only been within the last ten years that the greatest and most competent studies have been undertaken, of which the best known is the series made through the munificence of His Highness,

\* A paper read before the College of Physicians of Philadelphia, Jan. 6th, 1897.

the Nizam of Hyderabad, in India, and known as the "Reports of the Hyderabad Chloroform Commissions Nos. 1 and 2." The conclusions of the first commission having been criticized adversely because it asserted that the cause of death was respiratory failure, a second commission was formed, and under a grant of \$5000 from the Nizam, Dr. T. Lauder Brunton of London was sent out to direct the second investigation. Although a teacher of the theory that death from chloroform is due to cardiac failure, this gentleman returned to England converted to the idea that the cause of most of the fatal accidents under this drug is respiratory failure, and the conclusions of Commission No. 2 were once more criticized by numerous clinicians and pharmacologists in England and America. About this time the author and H. C. Wood published a paper in which they expressed their belief in the powerful depressing effects produced by chloroform upon the heart; and MacWilliams of Glasgow proved by experiment that chloroform without doubt causes cardiac dilatation and enfeeblement. Shortly after this the author of this article was asked by the Government of His Highness the Nizam, through Colonel Edward Lawrie, the Residency Surgeon, to carry out a series of studies designed if possible to reconcile the contradictory results reached by the Hyderabad Commissions and other investigators, and simultaneously Gaskell and Shore in Cambridge University, England, were asked to do likewise. The result has been to confirm in every way the results of all previous studies in one respect, namely, that the primary action of chloroform, on the vital functions of circulation and respiration, is greatly to depress the vaso-motor system, thereby causing an extraordinary fall of blood-pressure. Gaskell and Shore, to be sure, assert that anesthesia can be produced by chloroform without causing this fall, but the author has never been able to do so. They also believe that the fall is chiefly a result of cardiac failure. With this view the author dissents, because their experiments upon which these assertions are based were too complex to give positive results; and second, because his own studies and those of others show the vaso-motor system to be depressed. There is of course some cardiac enfeeblement and dilatation, which adds to the fall of pressure.

As with other discussions in medicine, the truth of the question as to whether chloroform causes death by respiratory failure or

cardiac failure lies as it were half-way between the two antagonistic forces; and, further than this, the somewhat startling statement may be made that it is not directly due, in the majority of cases, to either of these causes. On the contrary, *the cause of death from chloroform is usually vaso-motor depression*, whereby the arterioles allow the blood to pass too freely into the great blood-vessel areas which are found in the capillaries and veins, and as a result the man is suddenly bled into his own vessels as effectually as if into a bowl. When it is remembered that the capillary network of the body will, with the relaxed veins, hold many times the normal quantity of blood, and when it is remembered that we can inject salt solutions into the vessels to the extent of several times the normal quantity of blood without raising the blood-pressure, it at once becomes evident that the complete vascular relaxation caused by chloroform results in failure of all the vital functions, not because the drug has paralyzed the heart or respiratory centre, but because these parts are deprived of blood by its stagnation in the widely dilated capillaries and abdominal veins. Recent studies by Leonard Hill on "The Physiology and Pathology of the Cerebral Circulation" showed that this was the case, for he asserts that when the blood was no longer flowing to the respiratory centres the heart was still beating, because its coronary arteries, being lower down, were more easily supplied by the small blood-stream received by the heart from the veins. These studies are proved by the experiments of myself and my assistant, Dr. Thornton (THERAPEUTIC GAZETTE, October, 1893), by every tracing of the Hyderabad Commissions, and all other tracings we have ever seen. We may conclude, therefore, that while chloroform without doubt acts as a powerful depressant poison to the respiratory centre and the heart, in the same manner as it paralyzes all living protoplasm when applied in excess, that when properly given by inhalation it produces a death equivalent to that resulting from hemorrhage, which is a failure of the respiration not so much from a direct depression of the respiratory centre as from its starvation of blood; and while the tendency of the drug is to depress and dilate the heart, just as it dilates the vessels of which the heart is merely a highly specialized part, the failure in the pulse rests upon vaso-motor palsy, the patient becoming pulseless because the heart has not any blood to pump.

Let us see what evidence supports this

view: First, we have the laboratory tracings of many independent investigators extending over many years and made in all parts of the world, all of which show a fall of blood-pressure. Among these may be named Bowditch and Minot of Boston, Coats, H. C. Wood, Gaskell and Shore, the Hyderabad Chloroform Commissions, the studies of Wood and myself in 1889 and 1890, and of myself and Thornton in 1892 and 1893. They are confirmed by Hill, who has seen the abdominal vessels engorged with blood under chloroform, the medulla almost bloodless and the heart still pumping though respiration had ceased. They are confirmed by my own experiments, in which I proved that even after the respiration had stopped and the carotid was empty, and the dog apparently dead, he could be resuscitated by visceral compression and artificial respiration, and by inversion whereby the blood left the dilated abdominal veins for the heart and brain. Again, if a needle was inserted through the chest-wall the heart was found to be beating, for the needle moved to and fro; and finally if the chest was opened the heart could still be found beating feebly—dilated, it is true, but beating.

So much for the laboratory evidence. What have we in clinical evidence? Equally positive proofs of vaso-motor palsy, and none of death being purely cardiac or respiratory. For years Chisholm of Baltimore and later Howard Kelly and a large number of others have used inversion with compression of the floating ribs in artificial respiration, which has forced the blood into the chest and saved life again and again. For years the literature of medicine has teemed with reports of death from chloroform while the patient was sitting up or half recumbent, because the blood-paths being dilated this posture favored anemia of the vital centres. Again, it has been proved both experimentally and clinically that the best vaso-motor stimulant—belladonna or atropine—given before the chloroform, increases its safety, and that compression of the limbs by bandages does likewise. Finally, Hill has shown that abdominal compression also produces resuscitation by sending the blood to the heart. On the contrary, saline transfusion, which at first glance would seem to be indicated, is useless, because the dilated blood-paths will receive all the saline for a long time before they will overflow towards the heart, for as fast as the fluid flows in they dilate.

My conclusions therefore are, that while chloroform in its general depressing power

depresses all vital functions, it is the question of blood-pressure which is most important, and therefore in the use of chloroform we should always keep the head low, precede the use of chloroform by atropine hypodermically, bandage the limbs if the case is feeble or already bloodless, and if necessary place compresses on the belly and apply them deeply by pressure if a failing circulation is developed.

The primary action of the chloroform is to depress the blood-pressure chiefly by its vaso-motor effect, secondly by its cardiac effect, and finally that while the drug does exercise a depressant effect on the respiratory centre, the failure of this centre is chiefly due to anemia. As, however, an intact respiratory centre means regular breathing, we watch this function to determine the dose of chloroform actually inhaled, and because any variation in this function, as shown in irregular breathing, means that the chloroform is disordering arterial tension. Death from chloroform, then, is usually a vaso-motor death, for an intact arterial system is as important to vital function as an intact cardiac apparatus.

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#### *THE SUTURE-CLAMP OPERATION FOR HEMORRHOIDS.\**

BY LLEWELLYN ELIOT, M.D.,  
Washington, D. C.

It is not my intention, at this time, to discuss the various operations for the cure of hemorrhoids, but simply to call attention to an operation which I have successfully performed several times during the past year. The operation and suture clamp, so far as I am aware, originated with Dr. William Erwin, of Walter's Park, Pa., and should receive more extended recognition, as an examination of the instrument will illustrate the simplicity of the procedure.

The clamp consists of two arms bent at a right-angle at the lower end; this bent portion, which is about one and a half inches long, is provided with a shoulder one-fourth of an inch high and perforated by five small openings; the shafts above the angle are pivoted and serrated to receive a ring which regulates compression and bleeding.

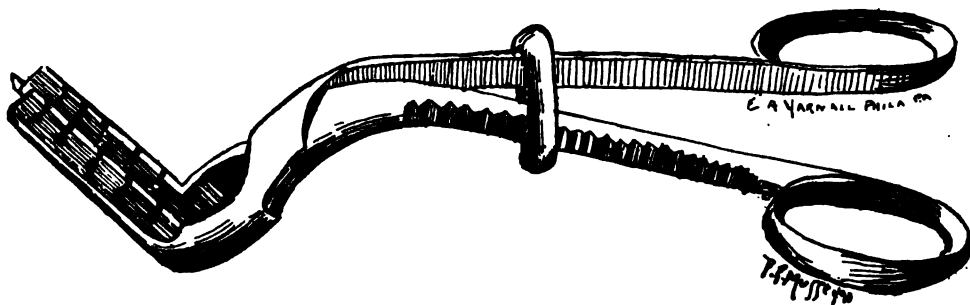
To do this operation the patient is prepared by having the bowel well flushed; the legs are held with a leg-holder; the sphincter is well dilated; the hemorrhoid seized with a

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\* Read before the Medical Society of the District of Columbia, Oct. 14, 1896.

forceps and well drawn down; the clamp is then applied as near the base of the hemorrhoid as possible, and the ring slipped along the serrations until we have a sufficient amount of compression to control hemorrhage. With a needle threaded with silk or catgut the hemorrhoid is pierced through the needle holes of the clamp. When the sutures are placed, the hemorrhoid is cut off with either knife or scissors, the sutures tied and the clamp removed; the stump is dressed with either aristol, acetanilid, iodoform, or other antiseptic material, and returned to the

do under any other operation, on account of the troublesome hemorrhage attending the use of the clamp and cautery, the incision, or the Whitehead, or the excessive sloughing which would have attended the injection method. In every case the patient has been discharged before the end of the second week, and has remained cured, if the expiration of a year without return may be regarded as a cure. There is no effort made to control the action of the bowels after the third day, when they may be allowed to move. The diet is restricted for the first few days to



Suture-clamp operation for hemorrhoids.

bowel should it not return of itself; gauze, absorbent cotton, and a T bandage complete the operation. When the hemorrhoid is longer—that is to say, has a base broader than the blade of the clamp is long—the hemorrhoid must be removed in sections, one section being completed to the tying of the last stitch, before the second section is attacked. The reason for leaving the last stitch incomplete is, that one may have a certain amount of control of the remaining part, and then again the clamp can be placed more satisfactorily. It is surprising to see what a small amount of blood is lost in this procedure; and if the sphincter has been well dilated there is a comparative absence of pain following the operation. Convalescence is usually very rapid; there is but a short detention from business, the sutures being removed on the fifth or sixth day, when the wound is nearly healed. Should the stumps remain large, a few applications of a mildly astringent solution of alum or tannic acid will contract them and cause them to disappear.

Chloroform must be administered to perform this properly, as well as any other operation about the rectum.

No case histories are cited here, but I have removed by this operation seven hemorrhoids at a sitting, when the anus resembled a link of sausage, flanked with grapes and cherries. This was more than I would have dared to

liquids or semi-fluids; then all restriction is removed.

The advantages of this operation are: it is almost bloodless; it does not present a sloughing surface; it heals rapidly; it removes the entire hemorrhoid; and it does not affect the tonicity or the calibre of the bowel.

#### CONTRIBUTIONS TO THE PATHOLOGY AND TREATMENT OF ADHERENT PLACENTA.\*

BY BEDFORD BROWN, M.D.,  
Alexandria, Va.

Firm adhesions of the placenta to the walls of the uterus may occur at any stage of gestation. I have not infrequently seen cases in the early stages, at the third and fourth months of pregnancy; then again at the fifth and sixth months, and at full term.

*Etiology of Adherent Placenta.*—Unnatural adhesion of the placenta to the walls of the uterus must be regarded in the light of a true pathological process: this is eminently true of the condition when found in the last stage of pregnancy. In all the cases occurring in my practice at term or after the fourth month there were morbid conditions of the

\*Read before the Southern Surgical and Gynecological Association, November, 1896.

system or traumatic causes existing to account for the presence of the complication. In three cases there was present positive rheumatic diathesis; in one there was present a decided gouty diathesis; in two the subjects had constitutional syphilis; three of the cases could be accounted for by traumatism, and in only two were there unknown causes.

Out of some two hundred cases of abortion in the early months of pregnancy seen in my professional practice, some thirty were complicated with adherent placenta. In my own experience in a very considerable portion of the cases of abortion the placenta has been adherent. I could not be mistaken in this condition, as the os uteri was amply dilated and the placenta remained strongly attached, and had to be scraped away in detached portions from the seat of attachment with the inserted finger. Then again, after abortion, I found in certain cases, weeks after the expulsion of the fetus, the placenta firmly attached, well preserved, with a communicating circulation with the uterus. Cases of abortion sometimes occur in which the placenta is adherent but dies from want of circulation, and remains in its attached state. After abortion, in cases of adherent placenta, if the organ is permitted to remain, and if the placenta is connected with the uterus by a continuous circulation, it continues to live and may give rise to occasional hemorrhage, but never to sepsis. On the contrary, when the adherent placenta dies and remains in utero a long train of evil consequences arise—repeated hemorrhage, sepsis, septicemia, fever, and local septic inflammation in the pelvis, as endometritis or pelvic peritonitis.

I am convinced that adherent placenta will be found in a considerable portion of the cases of abortion—many more than is generally thought.

In the cases of adherent placenta of syphilitic origin coming under my care, the abortion has taken place about the fifth month of gestation. In these cases the fetus was dead. In the cases of adherent placenta arising from the rheumatic and gouty diathesis, gestation went on to full term; in those arising from traumatism, the miscarriage occurred some two or three weeks after the injury. In two of these cases the injury was caused by blows on the abdomen; in another, by a fall on the abdomen; in all, there was pain and soreness over the location of the injury sufficient to excite suspicion of local peritonitis, and lasting for some days. The supposition was that inflammatory action was

set up by the injury in the uterine tissue at the seat of the placental attachment. One of these females had complete adherent placenta in three consecutive labors, at intervals of about two years. This patient had a remarkable tendency to acute inflammatory rheumatism. During her pregnancies she invariably had two or more attacks of acute articular rheumatism, but during the period of lactation was free from rheumatic attacks.

In these cases, whatever the primary or remote cause may be, the immediate cause of adhesion is probably inflammatory action resulting in fibrinous exudation and adhesion of the placenta to the walls of the uterus.

The character of the adhesion differs materially in the different cases: in some it is exceedingly strong and firm; in others the medium of adhesion is not difficult to overcome. I have found the firmest adhesions in the rheumatic cases: in all three of these cases the adhesion was so strong and firm that the placental tissue seemed to be a part of the uterine walls, and it was with the greatest difficulty that it could be removed and then only by scraping with the finger-nail, disintegrating the placenta in detached pieces and then scraping the uterine walls thoroughly. In some the placenta could be pulled off with the finger *en masse*; this was particularly the case with the gouty and syphilitic. In the first rheumatic case terrible sepsis, septic inflammation and septic fever followed, caused by a very small portion of dead placenta left in attachment: in the two other cases of rheumatic adhesion there were septic fevers, but of a modified type, and in the last one it only continued for a few days.

In all the cases there were slight septic manifestations, but they were easily controlled. It is very remarkable what a small portion of dead animal tissue undergoing the process of putrefaction will produce septic poisoning if left in the uterus. I have seen a portion of putrid, fetid placenta not larger than the end of the finger cause alarming sepsis, and have seen a portion of putrid membrane not larger than a silver dollar cause severe chill and a high grade of septic fever. I have again seen a decomposing clot retained in the uterus give rise to decided symptoms of sepsis. This teaches us the important lesson that we cannot be too careful in clearing the uterus of every particle of dead animal matter.

In my experience the question of sepsis in cases of adherent placenta depends almost entirely on whether a portion is left adherent

to the walls of the uterus. If even a small particle of placenta is left adherent and undergoes putrefaction, sepsis will surely follow: if the particle is very small the septic fever may not be of a violent character, but there will be more or less septic fever. But even in the case of a fetid portion remaining in utero and producing sepsis, this septicemia may be greatly modified by the action of antiseptic intra-vaginal douches. A dead piece of placenta in utero subjected to a temperature of  $100^{\circ}$  is one of the most offensive, stinking, infectious portions of animal matter I know of. I have known a portion of putrid placenta not larger than a marble when expelled from the uterus render a room horribly offensive. These small particles, often left after the removal of the mass, which are sure to become a source of trouble, can be disinfected, deodorized and embalmed so as to render them innocuous.

In all the cases followed by sepsis in my practice the attachment of the placenta was very firm and close, necessitating the removal of the placenta in detached portions after being broken up, when doubtless small portions were inadvertently left, though the walls of the uterus were carefully scraped with the finger-nails. In those cases where the attachment was such that the entire organ in mass could be pulled off there was no sepsis.

*Method of Removing the Placenta.*—As a preliminary measure to the operation of removing an adherent placenta the hands and arms of the accoucheur should be thoroughly scrubbed with carbolic soap and then bathed in a strong solution of sublimate. The vagina should be well douched with sterilized water containing bichloride in solution. The patient is now laid across the bed in the lithotomy position and placed fully under the influence of chloroform. The globe of the uterus is held down firmly by the hand of an assistant, while the operator inserts his hand up to the fundus of the uterus and gradually but cautiously pulls or scrapes off every particle of adherent placenta. This operation is really a very important one, and its success depends on its being carried out in all its details.

I performed this operation once without the aid of an anesthetic, but will never attempt it again. It is far safer for the patient and far easier for the operator, and can be completed much quicker and more thoroughly, as we have complete control of the situation. I prefer in these cases the natural

curette—the finger—to any other instrument, as the sense of touch is the very best guide and tells us what we are doing and what we should do in a manner that no metallic instrument can. If a chill and fever should occur within two or three days after the operation, we may know that we have left a small particle of dead placenta that has undergone putrefaction in the uterus and is proving a source of septic poisoning to the general system; we must be prepared to disinfect promptly this poisonous mass, no matter how small it may be, for a small portion of putrid placenta will infect a strong, healthy, robust woman and cause her death. I am so much impressed with the importance of the operation of removing an adherent placenta, and its consequences to the life of a mother, that I consider it a more momentous matter than the amputation of a limb.

CASE I.—Mrs. R., aged thirty-two; third child; had an attack of inflammatory rheumatism in the early months of her pregnancy, which continued until very near her confinement, resulting in ankylosis of the knee joint. The labor was natural. The placenta was found closely adherent to the uterus. The operation for removing the placenta was performed without the aid of an anesthetic as the patient refused to take it, and the removal was accomplished with great difficulty. It was necessary to remove the placenta in detached portions, and finally, after all was supposed to be removed, the uterine wall was scraped with the finger-nail. This case occurred twenty-seven years ago, long before the modern treatment of these cases was thought of. At that time such a thing as an intra-uterine douche was unheard of. This was the first case in which I had personal experience with a vaginal disinfectant douche in puerperal cases.

The hemorrhage during the operation was not alarming. The patient did very well until the third day, when a prolonged chill ushered in a violent fever: the pulse very soon reached 125, the temperature  $105^{\circ}$ , and the abdomen became tense and painful—indeed, all the indications of general peritonitis set in. For twelve or fifteen days the life of the patient was despaired of. During this time the pulse ranged from 130 to 135; the temperature was  $105^{\circ}$  to  $106^{\circ}$ . The typhinitis was very great.

The treatment consisted in the use of quinine in large doses; calomel and opium; turpentine stupes; a saline laxative; and vaginal douches of hot water and carbolic acid.



About the fifteenth day a small portion of intensely offensive, putrid placenta was discharged; its odor was perfectly nauseating. This particle of placenta did not exceed in size the end of the finger. From that time the pulse and temperature began to be lowered, the tympanites and abdominal pain to subside, and in four or five days my patient had passed the crisis and was beyond the danger line. Immediately after the attack of peritonitis developed the symptoms of rheumatism promptly subsided.

CASE II.—Mrs. R. This was the same woman whose history was related in Case I. Two years after the last labor she became pregnant again and in due time gave birth to another child. During this pregnancy she had two severe attacks of inflammatory rheumatism, the last continuing up to the period of labor. She again had an adherent placenta, but not so firm as before. Under the influence of an anesthetic I very carefully removed every particle of placenta and scraped the seat of its attachment. The patient had but slight fever and recovered without difficulty.

CASE III.—In her next pregnancy Mrs. R. was much afflicted with articular rheumatism and confidently predicted another case of adherent placenta, which prediction was fully realized. After her labor, which was natural, the placenta was found adherent and very carefully removed under anesthetics. No fever followed in this case, and the patient did well.

One of the most remarkable features of this phenomenal case was that every child born with an adherent placenta was profoundly idiotic and died before reaching the sixth year. This woman gave birth to three children subsequent to this without the rheumatic features and without the adherent placenta, and all of these children are well developed and fairly intelligent.

CASE IV.—Mrs. B., young woman; second child; labor natural. The placenta was found attached rather firmly, but was pulled off and removed *en masse*: it was studded with numerous deposits as large as peas throughout its tissues. This patient had suffered several attacks of gout of the toes and fingers; in the joints of the latter there were considerable deposits of urate of soda. She had quite a sharp attack of gout during her pregnancy. This case did well and was not followed by any septic symptoms.

I cannot for a moment doubt that this was a case of gouty placenta.

CASE V.—Mrs. F., aged twenty; soon after marriage contracted syphilis from her husband. When I first examined her I found a fully developed chancre on each labia, which had appeared about five weeks previous. Under treatment these chancres healed in two or three weeks. Some two or three months subsequent to this she became pregnant with her first child. At the fifth month of gestation I was called to see her. She was thin, and threatened with abortion. In due time the abortion took place without the slightest discharge of blood. This is a common feature of labors wherein the placenta is completely adherent. In this case the umbilical cord was perfectly atrophied. It was exceedingly attenuated, soft, and easily torn. The fetus was emaciated and of a pale sallow color. The placenta was found perfectly adherent in its entire circumference, and was in a diseased condition. The vagina was washed out with warm sublimate solution, and the patient placed across the bed in the lithotomy position and given an anesthetic; the hand—disinfected—was inserted into the vagina and uterus without difficulty and the diseased mass pulled off, leaving the walls of the uterus perfectly clean. I will state here that when necessary the entire hand can be inserted into the uterus at fifth month of pregnancy without the least difficulty when the patient is fully under the influence of chloroform. She recovered without an untoward symptom. During her pregnancy she had well-marked symptoms of secondary syphilis in the form of ulcerative throat and syphilitic eruption, and was treated for these symptoms. After confinement the patient was subjected to a rigid system of treatment for syphilis, with entire recovery. She subsequently gave birth to a healthy child.

CASE VI.—Mrs. K., young woman with first child; labor natural. On examination of placenta attached to one edge of the organ there was found a distinct pedicle about one inch and a quarter in length which had a torn end and evidently had been separated from an attachment to some point beyond the placenta. I thought it best to explore the uterine cavity to ascertain whether anything remained. The patient was chloroformed and a careful exploration made, with the result that a perfect cotyledon of the placenta measuring one and a half inches in diameter was found completely adherent to the uterus, but was pulled off and removed intact. The corresponding end of the pedicle

was found attached to the cotyledon. Slight hemorrhage followed the removal but no other trouble.

I have reason to believe that while these cotyledons are not frequent complications they are more frequent than is usually supposed, and that when left in the uterus they will give rise to most serious consequences in the form of puerperal sepsis.

CASE VII.—Mrs. B. during pregnancy with her third child sustained a severe fall from a considerable height, striking the abdomen about midway on the back of a heavy chair, with great force. She suffered intense pain in the region of the injury. For many days she was confined to her bed with pain and extreme tenderness over this region, accompanied by fever. At this time I apprehended general peritonitis, but the symptoms ultimately subsided without serious consequences. This accident occurred at the sixth month of pregnancy. In due time she was delivered, after a natural labor, of an ill-developed, small and delicate child. The placenta was found perfectly adherent to the walls of the uterus precisely corresponding to the seat of the injury. The adherent organ was removed in the usual way under chloroform, and subsequently the patient did well. All the indications in this case point to it as a very good example of adherent placenta from traumatic causes.

*Treatment of Adherent Placenta after Abortion during the Early Months of Pregnancy.*—After a large experience in the management of accidental abortion—amounting to some two hundred cases—in a considerable proportion of which the placenta was adherent, I have come to the conclusion that the best and safest method of removing it is to place the patient across the bed in the lithotomy position, disinfect the vagina and the physician's hand, put her under chloroform, insert the entire hand in the vagina, then the first and second fingers of the left hand in the uterus and, using the finger as a curette, remove every particle of the placenta. Then wash the uterus out with a solution containing permanganate of potash, two grammes to the ounce.

I believe this to be a better, safer and easier method than that by the steel curette, and one by which no damage can be done to the walls of the uterus.

I desire in conclusion to say a word relating to the use of ergot in cases of adherent placenta, whether after abortion in the early months of pregnancy, or at term. It can

accomplish no good whatever, and is capable of doing much harm by producing a rigid contraction of the uterus, and particularly the os uteri; in this way delaying expulsion and preventing the introduction of the fingers or hand.

#### SO-CALLED SPIDER-BITES AND THEIR TREATMENT.\*

BY DR. A. DAVIDSON,  
Los Angeles, California.

It has not infrequently happened that people have presented themselves at my office showing a small wound (usually on the hand or arm) with an inflamed areola of skin around the puncture, and complained of more or less pain at the seat of injury. To the inquiry, "What injured you?" the reply is almost invariably, "Something bit me last night—I think it was a spider;" and if by any chance they saw somewhat darkly the object causing the injury, the probabilities are they would qualify the remark by the addition of "black spider."

Of the smaller spiders popularly supposed to be poisonous we have two—*Phiddipus Johnsoni*, Peck., and *Lathrodictus mactans*, Fabr.—both quite common in Southern California. Of the larger spiders, such as the *Lycosa* and *Tarantula*, the majority are probably poisonous enough, but of these I will not speak.

Direct and conclusive proof of the poisonous nature of our smaller species is still wanting, though the fragmentary evidence available is in some particulars probably conclusive enough. The two spiders *L. mactans* and *P. Johnsoni*, in common with other members of the Aranead family, possess a poison-gland and a hollow tooth or fang through which the poison is distilled into the wound produced. The poison-gland in relation to the fang is situated somewhat as it is in the rattlesnake, the poison-sac being attached to the root of the fang by a small tube that conducts the poison down the hollow shaft. The fangs of the smaller spiders act laterally; in the tarantula and kindred species they act vertically as in the snake. When the spider strikes, the fang, which in rest is folded back, is straightened and as it strikes, the poison, if the spider so wills it, is ejected. From the nature and disposition of the muscular fibres around the poison-sac, as well as from the fact that the spiders do not always use the

\* Read before the Southern California Medical Society, Dec. 18, 1896.

poison when striking insects, the ejection of the poison is believed to be under the control of the animal, thus differing materially from the rattlesnake, where the mere closure of the jaws compresses the sac and expels the poison. A small channel penetrates the tooth, opening on the side a little way from the apex; this opening is admirably placed for the purpose of ensuring its freedom from clogging when penetrating; and the double beveling of the opening still further assists in securing its patency.

Dr. Brown of Pomona, in a paper read before the Pomona Medical Society, detailed the history of a number of cases of individuals believed to have been bitten by *L. mactans*, in all of which the history and symptoms were very much alike. The individuals were in almost every instance bitten while on the seat of the water-closet, and all cases were characterized by sudden illness following the receipt of the injury—severe pains at the seat of injury radiating to the trunk and limbs, with precordial oppression and general symptoms of collapse, nausea, perspiration, cyanosis, but no local signs. Pains lasted for weeks and recovery was slow. Dr. Brown concludes his paper by saying there seems no doubt that this animal is provided with a venom "which for its size and the quantity of its poison exceeds that of any other living thing."

All this is in marked contrast to the symptoms presented by the two cases that have come under my observation. No. 1 saw the spider as it bit his leg, and killed it; and from the account of its appearance I think it was undoubtedly a *L. mactans*. The symptoms that followed may be classed as a simple painful cellulitis such as follows: poisonous bites of other animals, but which in this instance incommoded the individual for nearly three weeks. No. 2 lay down on the ground at midday to sleep, disposing his hands across his chest. Shortly after he felt something prick him at the base of the thumb; he struck at and killed it and found it was a specimen of *L. mactans*, with which he is quite familiar. The subsequent pain was similar to that following a bee-sting, and the part rapidly swelled to above the wrist. Next day the swelling was quite as marked and the pain was still present, though slight. On the third day it began to improve, and in a week all traces of injury had disappeared.

It is possible that different results from the same animal may be explained by individual peculiarity or the rapidity of the absorption of the poison. In the event of a wound be-

ing directly inflicted on a vein it is quite conceivable that general prostration with cardiac distress and respiratory difficulty might supervene. This may in a measure explain the peculiar symptoms complained of in Dr. Brown's cases, where the injuries were inflicted on the genital regions, the vascularity and extreme sensibility of which parts may have favored the absorption of the poison and increased the nervous symptoms.

The doubt naturally arises whether the injuries in Dr. Brown's cases were inflicted by the *L. mactans* or even by a spider at all, as he gives no record of the animal having been caught. There is no doubt that if a *Lathrodectus* spider beneath the seat of a water-closet is disturbed while nesting it will attack the disturbing object nine times out of ten. During the autumn season, after spinning the cocoon that holds its eggs and protects its young, it keeps closely around or broods over it like a bird over its eggs, and is very fierce in the defense of its nest, which may in part account for the frequency of its bites and the wholesome respect the laity show towards it. The species most common in water-closets are the common *Pholcus phalangioides*, Fuesl., and if over water *Tetragnatha elongata*, Walck., both of which are supposed to be quite harmless. *Phiddipus Johnsoni*, our other reputedly poisonous species, may be found anywhere, as it is of a nomadic family, and hunts its prey after the manner of the feline race. I never saw a case of injury supposed to have been caused by this spider.

The Mexicans have a wholesome dread of "the black spider," and many say they would rather be bitten by a rattlesnake than by such an animal. Their fears, while they ought not to be wholly ignored, should not bias us against all black spiders, for some of that color are admittedly harmless enough.

It is somewhat interesting and throws a rather conflicting light on the general nature of spider-bites to review the experience of naturalists of other countries. Walckenaer (His. Nat. de Insects) says: "However violent may be the effect of the venom which a spider injects into the puncture, this venom in the largest species in France produces no effect on man." Blackwall (Linnean Society Transactions) considers all British species non-poisonous. *L. malmignatus*, Walck., of Southern Europe, according to reports published in 1843, produced painful cellulitis lymphangitis with nervous symptoms, sometimes ending in convulsions; yet Lucas has exposed himself frequently to the bite of this same

spider and felt it no more than he would the prick of a needle. The bite of the *Katipo* of New Zealand, a species of the same family, is reputed to be quite poisonous, and cases are detailed in which symptoms of depression, prostration and pain were severe, but in few if any of them was the spider seen. In this country in 1886 a case was reported from North Carolina, by an intelligent farmer, where a negro was bitten by a spider believed to have been *L. mactans*, and died fourteen hours after in convulsions.

Against the popular prejudice here and elsewhere concerning spider-bites we have arrayed the experience of almost all naturalists in favor of their harmlessness—Waldenauer, McCook, Blackwall, and others have been repeatedly bitten by supposedly injurious species without any untoward result. A dispassionate survey of the whole subject would seem to suggest that spider-bites, like bee-stings, are more or less injurious according to the individual susceptibility, but are on the whole less troublesome and serious than a bee-sting. Some people have died of collapse within half an hour after the receipt of a bee-sting, and in almost every individual they are associated with more or less local inflammation. Inflammation has been seen to pass to local gangrene in strangers in India when first exposed to mosquito bites.

This *résumé* of my knowledge of spider-bites I have thought necessary to give, though I believe it may be accepted as a fact that almost all the so-called spider-bites met with in this section are produced by no spider at all, but by an insect called the pirate bug (*Rhasahus biguttatus*, Say.). This insect is common at some periods in orchards around the city, and may be found in our streets and dwellings, being attracted along with other insects by the lights. Now and then we meet with individuals who present themselves for examination, and give a history of being bitten in the house by some animal, which they brush off and think it is a spider. Next day the injured part shows a local cellulitis with a central dark spot; around this spot there frequently appears a bullous vesicle about the size of a ten-cent piece and filled with a dark grumous fluid; a small ulcer forms underneath the vesicle, the necrotic area being generally limited to the central part, while the surrounding tissues are more or less swollen and somewhat painful. In a few days with rest and proper care the swelling subsides, and in a week all traces of the cellulitis are usually gone. In some of the cases no vesicle forms

at the point of injury, the formation probably depending on the constitutional vitality of the individual or the amount of poison introduced. An entomological friend of mine has been punctured frequently by this insect, and in a few of the instances where patients have been "stung" the insect has been captured and brought to me, so that there can be no doubt as to the animal causing the injury. Probably all so-called spider-bites inflicted on individuals in the house are caused by this pirate bug, as *L. mactans* is never found in the house, and though *Phiddipus*, being of a wandering disposition, may stray into the house, yet it is rarely found there. This solution of the "spider-bite" problem explains why the animal that inflicts the bite is rarely found. If an individual is bitten by a genuine spider the animal, even if brushed off, would readily be found, but the pirate bug if so treated would escape by flying, while the individual is guessing he must have been bitten by a spider.

This pirate bug inflicts the wound by its proboscis, and so far as I am aware does not introduce any specific poison of its own secretion into the wound. The poison introduced is probably accidental and contains the ordinary putrefactive germs that may adhere to its proboscis. The insect normally preys on aphids, flies, and black scale, and, being carnivorous in its tastes, probably also feeds on the juices of putrid animals, thus acquiring the poison with which it infects the wound.

The treatment of such wounds has been in accordance with this theory and I have therefore applied corrosive sublimate 1:500 or 1:1000 locally to the wound, keeping the necrotic part bathed in the solution. The results have been in all cases favorable; the improvement after the application of the bichloride is usually so definite as to leave no doubt in my mind of its direct beneficial influence.

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#### ECZEMA UMBILICI AND ITS TREATMENT.

By J. ABBOTT CANTRELL, M.D.,

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Eczema of special regions demands distinct inquiry more often than does the disease when witnessed in usual or more exposed parts, and as this is especially true of eczema affecting the umbilicus or its contiguity my

remarks will be apropos at this time. Whether the part recedes or protrudes the same inquiry will be demanded on account of the numerous folds into which the disease may locate itself. When depressed beneath the general surface the condition is more likely to be unattended to until such time as the affection spreads upon the surrounding parts, because the afflicted person believes that in a short time the disease will heal of itself, but if the patient was aware what he was allowing to proceed he would immediately seek medical advice. Those persons in whom the part protrudes to some distance beyond the surrounding areas usually notice the uncomfortable symptoms long before the contiguous portions are involved and consequently seek proper intervention before the disease is allowed to progress to any alarming proportions.

Looking at the part in its natural and undiseased condition we discern a peculiar formation in its eagerness to adapt itself to circumstances. In the depressed variety usually found in those of large structure we notice a well formed concavity in which one can easily place the tip of the finger to a depth of from one quarter to one inch according to the size of the individual. The rugous elements are so arranged that one fold overlaps another in such manner as to be better able to resist contusion from without, but at the same time producing numerous sulci into which disease may creep unnoticed, and lurk until the proper time arrives for its extension. As the surrounding parts contain large collections of fatty substance the receded umbilicus is likely to be covered entirely at times during the movements of the individual, thus preventing proper access of air to the unnaturally made cavity and in a like degree retaining whatever foul air may have been introduced, thus allowing contained germs to act upon any portion of the area which may have previously been diseased. In a like manner these coverings may not allow the excreted sebum proper expulsion, but assisting it in the formation of crusts which may in themselves produce disease that in an uncleanly person may proceed for a considerable time unnoticed until disease has actually spread beyond the outer borders of the depressed area, thus complicating what may have been only the most simple of conditions. As the part is bound down by the connections beneath the derma affected in its most central portion, it can readily be seen why attention should be

continuously directed to this region for purposes of cleanliness, and so preventing the collection of any sordid or other obnoxious material which may have a tendency to produce either a simple dermatitis or a well-pronounced eczema of the part.

In those subjects where there is a protrusion rather than a depression we have a somewhat different condition confronting us, but in the main the part is arranged in a similar manner for the protection of the parts immediately beneath, and consequently shows the same rugous arrangement for self-preservation but does not show the enormous extent of sulci as found in the former variety. In the one instance we may witness the part raised only about one-sixteenth of an inch, but in the majority it is found to be protruded to one-half inch or even more above the surrounding portions of the abdomen; and this is governed by the size of the bearer, being more and more protruded as we encounter the still lesser dimensions. Naturally the part is not liable to the same amount of collections of sordid materials as the former variety, and consequently is the less likely to attacks of eczema; it should never be neglected for that reason, but should be inspected from time to time so as to prevent any superabundance of sebaceous collection in the form of crusts. One precaution that must be exercised in its behalf is to afford a certain protection from harm or bruising either from the clothing or in any other manner, thus preventing the formation of a dermatitis from which an artificial or true eczema may spring.

Now let us look for a short time upon the diseased areas, and as we notice the condition affecting the depressed umbilicus we find in the one instance that the skin has become attacked only in the sulci that are contained within the cavity, looking as it does more like an intertrigo than an eczema, but with a distinct weeping surface with some thickening and infiltration, and the slight or greater formation of crusts, all lying in the spaces between the folds, causing the exposure of numerous bleeding points upon the removal of the agglutinated material. This is rarely the extent to which the disease has progressed when it is our province to see it, but occasionally it does occur and therefore it is wise to be aware of its appearance. Usually when a case is brought to our clinics the condition has affected all of the depressed region and shows in addition to the diseased sulci an extension to even the summit of the folds, presenting a most disagreeable looking and

smelling part. It therefore presents a deeply reddened and moistened surface, with the formation of crusts in abundance, and some infiltration and thickening.

But unfortunately this is not the greatest extent to which the disease often confronts us, as many cases are brought before us wherein the condition has involved a much more extensive area sufficiently beyond the borders of the umbilicus to cause great alarm in the mind of the affected person. Besides the disease being found in the sulci and upon the summit of the various folds, it is likely to extend to one, two, or more inches beyond the borders of the most outer edge of the umbilicus; and as the condition involves the skin of this region in a manner similar to that affecting the enclosed portion of the umbilicus, it must be disagreeable in the extreme because of the great amount of discharge of a watery or serous nature, with the consequent formation of crusts which are continuously being detached and exposing a very greatly reddened and bleeding surface situated upon a thickened, infiltrated skin. The borders of the diseased area will be noticed to be fading into the surrounding healthy portion in the greater majority of cases, as is the usual manner of all forms of eczema; but in many of the cases this symptom will be entirely wanting, so that the borders will be rather abrupt, showing a distinct line of demarcation and hence complicating the diagnosis with other diseases of the skin of a much more chronic nature.

When the umbilicus extends or protrudes beyond the surrounding portions of the body the disease is rather of a milder nature when the umbilicus alone is attacked, because of the greater ease with which one may treat it; but it presents a condition similar to the former variety when the disease has spread beyond its borders, and consequently is just as annoying to the sufferer. Occasionally it may be found, when the disease has progressed far beyond the edges of the umbilicus proper, that the umbilicus has swelled to an enormous degree—possibly twice its normal size—thus complicating the condition still further, and giving much discomfort and pain, with sleepless nights.

The diseases which may at any time resemble this condition may be severally diagnosed by symptoms which each in its process presents, and individually may be differentiated by the following rules: That eczema is a moist affection, showing at times throughout its course the usual characteristics

of peculiar crusting, with a decided amount of infiltration and thickening, and a possible induration in long standing cases; that it has a tendency to fade into the surrounding parts rather than be abrupt; that the discharge is one of water or serum rather than pus; that if fissures do occur they have a tendency to self-healing; and its inherent tendency to superficial extension.

From psoriasis it may be differentiated because of its more acute nature; its tendency to moisture-crusting rather than scaling; its limitation to one portion of the body; and the intense itching.

From syphilis it may be recognized by the discharge of a serous rather than a purulent liquid; by a disagreeable odor rather than a foul-smelling stench; from the fact that syphilis is more likely to be confined to the depression, and to surround the edges by a serpiginous crawl rather than a diffuse extension; and by the peculiar color of the crust, which in syphilis is of a dark-brown color, and in eczema of a reddish blood-like character.

Pediculosis shows also distinguishing features in the fact that the lesions are more prone to be isolated and to be hemorrhagic puncta rather than a diffuse infiltration; to show the deposit of ova upon the surrounding hairs; and the possible appearance of dead or living pediculi.

In scabies the lesions do not limit themselves to this region, but may be witnessed elsewhere; but should we find lesions in this portion they would show their characteristic summit to the burrow, the peculiar tortuous outline, and the complication of vesicles or pustules with discrete crusting rather than a conglomerate mass of agglutinated material.

The treatment of this condition is generally confined in text-books to a few short lines, but unfortunately even these are not conclusive enough to give one more than a vague opinion as to what is the best plan of treatment, and consequently the condition, unless it should happen to fall into the hands of a dermatologist, is more likely to spread than to be checked in its career. But should one take into consideration the character of the condition, empirical measures may not be found amiss. First of all we have an inflammatory disease in which we may be confronted by some edema and exudation, with the tendency to the formation of crusts; its fading border, with the great desire to bleed upon the slightest provocation; and the intense itching which always accompanies the

condition. These latter symptoms may alone give one a cue as to what form of treatment is demanded, and after thinking one certainly can see that astringents are called for, with the addition of some palliative as well as an antipruritic; but oftentimes it will be seen when the condition has arrived at the chronic stage, and where the inflammation is more of a subacute character or rather quiescent, that some form of stimulant may be required first to present a favorable surface for the reduction of inflammation.

When the disease extends beyond the borders of the umbilicus we have recourse to astringent remedies in the acute or moist varieties, and of these we may find beneficial effects following the application of either calomel or acetanilid in the proportion of ten to forty grains to the ounce of the official zinc oxide ointment, or one-half ounce of this with an equal quantity of petrolatum or lanolin, applied twice or thrice daily to the part direct, or placed upon a linen cloth and then allowed to cover the diseased areas, being kept in position by some bandage. Should cases arise in which neither of these astringents will relieve or cure, sulphur, bismuth oxide, or one of the tarry preparations in the strength of one-half to one drachm to the ounce of one of the above excipients will often give decided relief and cure. This form differs little from any acute eczema upon other portions of the body, and like it we find those cases presenting a dried or chronic infiltrated or thickened appearance; but in the latter form it will be found necessary to advise the application of more stimulating remedies, and our choice will lie advantageously between resorcin, salicylic acid, salol, or possibly thymol in the strength of from ten to thirty grains to the ounce of an ointment base—with the exception of thymol, which may be advantageously advised in the strength of five grains to the same quantity—and placed upon the part in the most direct contact and covered with a roller. In those cases showing much swelling such lotions as a saturated solution of boric acid in water, or the black wash (three to ten grains to the ounce of lime-water), may be used with decided relief.

When the disease has been confined to the umbilical depression for some unknown time, then and then only will the disease give us much concern, and our choice of remedies will be demanded from those which will give us a favorable condition of the part to use curative drugs. All or most of the text-

books refer to the use of the application of nitrate of silver in solution, and I cannot but say that it has been judiciously chosen; but rather than confine myself to one remedy alone, knowing that one remedy often fails, I have studied the action of numerous others and find that some are at least just as effectual and often more beneficial than the silver caustic. The manner of applying the silver nitrate is in solutions of from ten to twenty grains to the ounce of oil, which retains it in contact with the diseased area for a proper time, naturally cauterizing the part to some extent; thus giving us a proper base for curative measures. But in my practice this has been found to give much pain in most of the cases, and for that reason I have looked around for remedies which would not be so likely to cause much discomfort, and have advised either resorcin or salicylic acid in many cases with good results. In applying the latter two drugs I have usually advised one or the other in the strength of forty grains to about two or three drachms of petrolatum or lanolin, which was to be kept in close touch with the affected portion for periods varying from two to three hours, when other and more curative measures may be adopted. In other cases I have received excellent results by using lactic acid in full strength, applied by means of an applicator upon the bleeding surfaces of the patch, and then following it with the application of one of the above mentioned astringents until the case was entirely cured.

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#### *THE SUCCESSFUL TREATMENT OF ECZEMA OF THE EAR.\**

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BY B. ALEXANDER RANDALL, M.A., M.D.,  
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In whatever part of the body it appears, eczema has an unsavory reputation for the innumerable forms which it assumes and the rebelliousness of most of them to treatment. The therapeutics of the affection is endless and still oftener unsatisfactory; and it is generally conceded that the aural manifestations are probably the most obstinate. Hence a discussion of this matter may have an interest to those who see much more of its localization elsewhere; and measures fairly successful here may have value to those who rarely see it about the ear.

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\* Read before the Section of Otology and Laryngology of the College of Physicians of Philadelphia, Dec. 1, 1896.

A group of differing affections may be ordinarily gathered under this one title when deserving separate names and consideration; and *Otitis externa diffusa* comprises several conditions generally distinguishable in causation and character; yet much in common can be seen in each of them, and it is to this rather than to any hair-splitting diagnosis that attention is here given. Otomycosis with manifest exuberant growth of *aspergillus* may seem a separate entity, for instance; but really the botanist rather than the surgeon is interested in the genus and species of the parasite, while those who regard all the eczemas as microbic in origin may truly be showing us that much of this is merely accidental. Each partisan of a theory may at least help on the successful treatment of these conditions; for he makes it clear that the parts involved ought with all possible speed to be made unfavorable hotbeds for the culture of such germs, whether pathogenic or accidental.

Yet the importance of local measures must not blind us to the influence of constitutional elements. A gouty diathesis is so common that we may pervert the old saying, "*Chacq'un a son gout*," and always make most careful inquiry as to the diet and life of the patient, and by medicine as well as regimen seek to lessen any such basis of the trouble. Without this the most perfect topical measures may prove futile or temporary. This aspect of the question should always lead us to scrutinize well the other ear, which may be thought to be unaffected; but this is a standing rule in otology. The evidences of its participation may be inconspicuous, but it is poor policy to overlook them. As to the local causes, it may be claimed that hardly any of the otorrhea cases escape some involvement of the skin surfaces, although the condition may be too secondary to merit any separate measures of treatment. When we look to statistical tables we find this group of affections set down at from five to ten per cent. of ear-affections, with wide individual variations as to its recognition. Add to these, as I think we rightly can, the cases of furuncular affections, and the proportion grows quite notable. These latter cases rarely fail to show evidence of previous itching of the meatus, in consequence of which the canal was scratched, in sleep if not in waking hours; and through the resulting abrasion was introduced the infection which inflamed the involved glands. As a prophylactic, therefore, as well as on its own account, such an eczema deserves treat-

ment more careful than might otherwise seem necessary.

Antiseptic cleansing should constitute the first measure of treatment; and it had better be a little overdone than slighted. Irritation of the lesions is to be decidedly deprecated, and the choice and employment of cleansing agents deserves a full consideration of this factor: but stripping off of crusts and films of desquamating epiderm should sometimes be pushed to the limit of the patient's endurance, when the oozing surfaces seem to cry out against such violence. When we remember that the seat of trouble is often in the deeper layers of the skin, the futility of merely smearing medicaments superficially must be evident; not to speak of the intervening crusts and scales, which are alone the recipients of the applications in some instances. The macerations, poulticings and douches sometimes employed have generally seemed to me contraindicated; and the prejudice which I early imbibed against water in eczema has grown stronger with experience. Oil may do better, as is claimed, and the rejection of the petroleum products has probably little basis: but long use of hydrogen dioxide has shown it to better meet my needs, in spite of its watery menstruum, than anything else. It is rarely irritating in itself unless maintained needlessly long in contact; its antiseptic properties may be rather feeble in the test-tube, but are more real in the tissues than those of most of its rivals; and, most important, it seems to reach the needy spot with greater certainty than other remedies. It is very striking in some cases of almost invisible lesions to mop the surface with the commercial dioxide and see the slight manipulation faintly reveal congested patches beneath the surface. A few moments more of gentle mopping, and patches of dead skin, probably loaded with microbes and septic matter, start so conspicuously into view that it is hard to believe that they lie deeply buried beneath an apparently healthy surface. Unsuspected points or areas are thus demonstrated and, partly at least, disinfected and prepared to receive the further medication. When this consists of an ointment, as in most of the mild and chronic cases, it is instructive to see how long it is before the oily base of the preparation can be made to penetrate to the snowy points of diseased tissue and, by rendering their cells transparent, cause them to fade again from view. Measures like this or like silver in marking distinctly the extent and thorough-



ness of our treatment, seem to me very valuable. This triple function of the dioxide in aiding diagnosis, securing at least partial antiseptis, and in marking the completeness of the farther treatment, is shared by no other agent at our command; and I doubt if in any of these rôles it is excelled by any rival.

The real medication which follows must be adapted to the exact condition presented. In some of the acute, severe, and erysipelalous lesions we may do well to treat it with ichthyol, pure or, generally better, in twenty-five per cent. ointment locally, while exhibiting tincture of iron chloride in full doses internally. If moist, a solution of silver nitrate, two- to ten-per-cent., may be used as freely as the extent and aggravation of the lesion seems to justify. The astringent action and the protection of the albuminoid layer more than offset the irritation produced; but it may at first be safer to treat only limited areas thus. In the dry but irritable phases, calomel ointment, five- to ten-per-cent., has served me best; in the more torpid, yellow oxide of mercury or salicylic acid, two- to five-per-cent.; and in the most latent, sub-epidermal form, resorcin in equal strength. It has seemed to matter little whether these were made up with the various forms of petrolatum, with lanolin or with one of the more elegant, non-fatty bases. I have no complaint to make against any form of grease which is free from rancidity. But in the use of any of them, the vehicle which may be said to be most potent in carrying the medicament actually to the affected cells is what is sometimes called "elbow-grease." This is a principle coming into recognition among most dermatologists now, I believe—that personal application of the means to properly prepared surfaces is the most important factor in the treatment; in no other way can the limitations of intervention be intelligently complied with, the remedy so well selected, or so thoroughly yet unirritatingly applied; and while the length of time involved may seem a decided obstacle, experience will reduce this to a minimum compatible with the best interests of the case. It is surely better to give the time on a few occasions and win notable success, than to spread it over many sittings which profit little or nothing. Home application of the remedy selected may well be attempted as an addition to the skilled treatment, and may prove a good adjuvant; but much of the non-success in dealing with such affections may be laid to the charge of mere prescribing, or of

inefficient employment by the medical man of medicaments potent for cure when really applied to the affected tissues.

In short, most of the commended local applications can be made efficacious by conscientious and painstaking use, with some care in selection, accompanied by rational internal medication for any underlying dyscrasia. But unless the practitioner uses both his hands and his head, his patient may about as well make his own choice of one of the proprietary articles so commonly advertised.

#### TREATMENT OF FRACTURES.

In an interesting paper on this subject, G. G. DAVIS, in the *Annals of Surgery* for December, 1896, reaches the following conclusions: 1. Massage and passive motion are not used to the extent that they should be in the treatment of fractures. 2. Immobility of the fractured ends favors quick union with little deformity. 3. There are some cases in which, owing either to peculiarities of the fracture or to impaired constitution of the individual, the tendency to the formation of callus is marked; motion in these tends to the formation of exuberant callus and deformity. 4. There are others in which bony union is unduly delayed; disturbance of the fractured ends in these hinders union. 5. It is wise to wait until the fractured parts are glued together, usually eight or ten days, before attempting any except the lightest massage, and any extensive passive motion after that time should be used carefully but diligently. 6. Passive motion and massage when first attempted should be of the most gentle character, and not so violent as to disturb the relation of the broken bones. 7. Marked pain and inflammatory reaction following passive motion and massage are evidences that it has been too violent. 8. The limb should receive massage and manipulation at each inspection or change of dressing, often daily. 9. In some cases it is advisable to administer such massage as is possible without removing the splints. 10. Persistent stiffness, particularly in fractures or injuries of the wrist, is often due to a rheumatoid affection locating itself in the injured region. Massage is valuable in the treatment of such a condition. 11. Massage should be given to the parts of the limb that lie beyond the seat of the fracture, to keep them in a normal condition. 12. Such dressings and methods of treatment should be adopted as will allow of the greatest use of massage and passive and active movements consistent with proper retention of the fragments.

# The Therapeutic Gazette

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## Leading Articles.

### A WARNING.

A physician, giving the name of Dr. A. L. Perry, has been calling on physicians collecting subscriptions for the THERAPEUTIC GAZETTE and then failing to remit these subscriptions to the publisher.

All persons are therefore warned against paying him any money due for the THERAPEUTIC GAZETTE.

### THE VALUE OF THE OIL OF GAULTHERIA AND THE BEST WAY OF EMPLOYING IT IN THE TREATMENT OF RHEUMATIC AFFECTIONS.

From the time at which the salicylates were first introduced into medicine for the relief or cure of rheumatic affections, until the present day, one of the chief objections to their employment in effective doses has been the fact that they seriously disturb the digestion of the patient. To such an extent has this objection to their use been found

to exist that many physicians are loath to employ the salicylates, and when they are forced to give them, are so governed by the fear of this untoward influence that they administer doses which are insufficient to produce the therapeutic influence which is desired. The profession, therefore, is very ready to take up and employ any new method, or drug, by which they will avoid disturbing digestion, and it was thought at one time that in the oil of gaultheria, which contains over ninety per cent. of the salicylate of methyl, an efficient substitute for salicylic acid and the salicylate of sodium had been found. So far as we know the first careful clinical and physiological study which was made of the oil of gaultheria, particularly in connection with its employment in rheumatism, was that by H. C. Wood and the writer of this editorial in the latter part of 1885, their paper being published in the THERAPEUTIC GAZETTE in February, 1886.

It was found, as was expected, that the large percentage of salicylate of methyl contained in the oil of gaultheria had exercised a very positive influence for good in those cases of rheumatism which are usually benefited by other salicylates; and, further, that its physiological action was practically identical with these remedies. Further experience with the oil of gaultheria, however, while it supported the view that it exercised a beneficial influence in rheumatism, showed that it disordered the digestion quite as frequently as did the other salicylates, and for this reason it has not become particularly popular. Indeed there are some patients who, after taking both remedies, much prefer the salicylate of sodium or the acid to the oil of gaultheria. It has, however, been recognized as a fact for a number of years that the volatility of the oil of gaultheria rendered it easy of absorption by the skin and the respiratory mucous membrane. Quite ten years ago Randolph showed that, if oil of gaultheria was placed on a sponge which in turn was placed in an inhaler, in a very short time the reaction of salicyluric acid could be obtained in the urine upon the addition of perchloride of iron, proving that the drug was rapidly absorbed from the respiratory mucous membrane and rapidly eliminated. He also found that the use of the oil of gaultheria in an ointment applied externally resulted in its absorption and the appearance of a characteristic reaction in the urinary secretion.

Our attention has been called to this mat-

ter once more by the paper of Lannois and Linossier in *Lyon Médical* for September 20, 1896. These authors, after recalling the fact that they have demonstrated the absorbability of the salicylate of methyl through the skin in the early part of this year before the Academy of Medicine in Paris, record twenty-four cases of various forms of rheumatic affections which they have treated by the external application of this drug, and their results are such as to encourage them to continue this method of treatment, although it is a noteworthy fact that in the majority of their cases the conditions present were not such as are generally most favorable for the administration of the salicylates. Thus only four of the twenty-four cases suffered from acute articular rheumatism; in eleven the rheumatism was articular but subacute; in seven it was chronic and associated with deformity; and in two the rheumatism was gonorrheal. Curiously enough, they assert that in both of these last cases this treatment did good, although it is the universal experience of the profession that as gonorrheal rheumatism is septic in origin, and not due to the ordinary causes of rheumatic affections, the salicylates are perfectly useless.

The method which they have followed in the application of the oil is as follows: The part which is affected is surrounded by lint which has been moistened by the application of one or two teaspoonfuls of the oil; this is then surrounded by a sheet of gutta-percha, and the entire limb carefully wrapped in an outside bandage, which is applied in such a way as to prevent the heat of the body from vaporizing the drug and permitting it to escape into the air, while the bandage also softens the skin and in that way aids in the absorption of the remedy. Under these circumstances these clinicians claim that the pain is rapidly relieved, that the swelling decreases, and, as an evidence of the physiological action of the drug, that headache or fulness of the head, with throbbing of the ears and other characteristic symptoms of cinchonism, speedily appear; and, further, that in the course of so short a time as half an hour the salicyluric acid reaction may be obtained in the urine. In the course of eight or nine hours the greater quantity of the salicylate of methyl which has been applied to the limb is absorbed and eliminated, total elimination being accomplished in twenty-four hours and relief of the symptoms produced usually earlier than eight hours; the

temperature also falls, and the general condition of the patient markedly improves.

Locally this treatment may produce reddening of the skin, and if it is continued for some time, actual desquamation of the cuticle; but this is not painful since anesthesia is developed in much the same way as follows the application of guaiacol.

Considering the difficulty that is met with in the treatment of rheumatism, not only through the causes that we have named, but also from the fact that in many instances the disease is singularly persistent and resists all our remedial measures, we have thought that our readers would be interested in the results obtained by these French investigators.

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#### THE TREATMENT OF INTUSSUSCEPTION BY NON-OPERATIVE MEASURES.

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In *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases* for January, 1897, there is to be found an interesting paper upon this subject by Dr. Pyncheon of Chicago, in which he discusses the treatment of intussusception by what he calls colono-enteric irrigation. He records the case of a girl of fourteen in whom he found an intussusception and to whom he gave relief by irrigation, a method which has been quite heartily recommended heretofore in the editorial columns of the THERAPEUTIC GAZETTE. Pyncheon describes a very useful home-made operating apparatus by which he placed the patient in the position most suitable for her relief under irrigation. In the centre of the room he inverted a high-back dining-room chair so that the top of the back rested upon the floor, and under the front edge of the seat he placed a boot-blackening stand with some large books thereupon in order to make a support of sufficient height to permit the back of the chair to slope at an angle of about seventy-five degrees. He next placed over the chair a bed-bolster and covered this with an old quilt folded lengthwise about six times. The patient was then quickly anesthetized and suspended over the chair face downward with her head near the floor and her thighs well secured between the legs of the inverted chair, the condition of anesthesia being kept up during the entire procedure. A fountain syringe was then filled with water heated to about 110° F., and the bag was hung up as high as the ceiling of the room would allow, although Pyncheon asserts that

he would have liked, had the patient been on a lower floor, to have lengthened the tube and to have hung the bag still higher. He also enlarged the opening in the rubber tip of the syringe so as to increase the rapidity of the flow of water into the bowel. Active massage of the belly walls was practiced. This flow of water was continued until, as Pyncheon states, his efforts were suddenly crowned with success by a violent gushing of water from the patient's mouth, when the operation was stopped.

In the conclusions of his paper Dr. Pyncheon points out that the rectal tube should be of such shape as absolutely to control the escape of water from the rectum; that no air must enter the gut; and that abdominal massage should be alternated with the onward flow of water.

Finally he states that the fall of water may vary from fifteen to thirty feet, according to the age of the patient and the stage of the trouble, providing that a lesser fall of say six feet, in alternation with massage, is not successful.

We have called attention to Dr. Pyncheon's article for two reasons: first, because we desire to emphasize the importance of intestinal irrigation in the treatment of intestinal obstruction; and, secondly, because we are forced wholly to disagree with the last conclusion at which the author has arrived. About ten years ago Dr. Nicholas Senn stated, as the result of experimental investigation, that it was possible by injecting water into the bowel under considerable pressure, to do serious damage to the peritoneal coat of the bowel, and for this reason the pressure recommended in the paper which we have quoted is far too great. There are very few intestinal walls which would stand a hydrostatic pressure of thirty feet, and a patient exposed to such a pressure would be seriously endangered. We speak of this matter advisedly, for in 1890 the editors of this journal were awarded the Fiske Fund Prize of the Rhode Island Medical Society, for an essay in which this subject was carefully discussed after a series of laboratory and statistical studies. In these studies it was found possible to pass water from the anus through the pyloric end of the stomach and out through the esophagus by a pressure not exceeding that produced by a water-bag held at from eighteen inches to two feet above the abdomen of the animal. It was further found that a greater pressure than this was capable of doing harm, and that it was not so much a

question of the degree of pressure as it was its continuance. Every one who has dealt with muscular fibre knows that the way to overcome its resistance is by gradual pressure continuously applied until the resistance is exhausted. While on the other hand, if we attempt to overcome muscular resistance by the application of great force, the spasm is apt to continue through irritation, and the patient is not benefited. The proper way, then, to use intestinal injections for the relief of intussusception is to anesthetize the patient, to place him in the position recommended by Dr. Pyncheon, and then to allow the water to trickle into the bowel so slowly that by the gradual application of its force the obstruction is overcome. We repeat that while we heartily agree with Dr. Pyncheon's recommendation as to the general plan of treatment in these cases, we must entirely disagree with him as to the height at which the water-bag should be placed.

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#### *THE INFLUENCE OF CHLOROFORM ON THE VASO-MOTOR SYSTEM.*

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In the report which the Editor of the *GAZETTE* submitted in the spring of 1893 to the Government of his Highness the Nizam of Hyderabad, upon the action of chloroform, and which was published in the fall of that year in the *THERAPEUTIC GAZETTE*, he emphasized his belief in the fact that in the great majority of cases the danger from chloroform lay in its powerful and primary depressing influence upon the vaso-motor centre, and urged upon the profession the recognition of the fact that an intact vaso-motor apparatus and a normal arterial pressure are as necessary to the maintenance of life as an intact cardiac mechanism. This view he has reiterated again and again in the columns of the *GAZETTE*, in his "Text-book of Practical Therapeutics," and in an article upon Anesthesia in Park's "System of Surgery," and lastly in an article in the original columns of this issue. Yet another time he has called attention to the importance of the normal vaso-motor tone in the diagnosis and treatment of disease in an article in the *THERAPEUTIC GAZETTE* during 1896, and he now once more calls attention to this fact, which he believes is still too much ignored by the profession, namely, that chloroform exercises its chief danger through its vaso-motor influence.

The reason that he has for once more

speaking of this matter is not only its importance but because of the confirmation which his views have had through the publication of an exceedingly interesting monograph by Mr. Leonard Hill, of London, in which are published the results of "An Experimental Research upon the Physiology and Pathology of the Cerebral Circulation," a research which was also embodied in the lectures which he delivered as Hunterian professor at the Royal College of Surgeons in February, 1896. After stating that all the tracings which he has ever seen taken from animals under chloroform, and particularly those taken by the Hyderabad Commission, show enormous falls of blood-pressure before respiration ceases, he points out that the failure of respiration is obviously due to the anemia of the respiratory centre which is produced by the fall of blood-pressure; and he has confirmed this view by his own experiments. He then goes on to state the fact that the primary and vital danger from chloroform is failure of cerebral circulation, which he asserts stares one in the face in every one of the tracings made by the Hyderabad Commission.

Again, he points out that respiration generally stops before the heart does because if the head is above the level of the heart the cerebral circulation will cease before the circulation in the coronary arteries; and the practical result of his studies is that abdominal compression immediately removes the effect of the vaso-motor paralysis, and that not only should compression be used, but also the abdomen as well as the limbs should be elevated and bandaged, in case of chloroform accident or where chloroform accident is feared. Neither can the injection of normal saline be of much benefit to the patient suffering from a chloroform accident, for as long as the splanchnic flood-gates are open, allowing all the blood to stagnate in the large abdominal blood-vessels, the addition of saline solutions simply increases this engorgement without materially increasing the quantity of liquid which goes to the brain. These are the reasons why so many deaths have occurred from chloroform when it was administered to the patient sitting erect. These researches also explain the well recognized clinical fact that the administration of atropine, which is our best vaso-motor stimulant, tends to prevent chloroform accidents.

We commend this research to our readers as one which cannot fail to impress them as a valuable contribution to the subject of which it treats.

#### PHARMACOPŒIAL PREPARATIONS OF DIGITALIS.

Under the above heading there appeared in the Philadelphia *Polyclinic* of January 2 an interesting article which was written at the request of the Editor of that journal, who expressed the hope that further discussion of the questions therein treated should be entered into. The readers of the *GAZETTE* have a vital interest in all matters pertaining to the activity and reliability of drugs, and the Editor at once asked a well known pharmaceutical chemist to write his views, which are appended. We therefore take the liberty of offering some opinions which are the outgrowth of several years of experience in handling digitalis preparations. We do not think we are wide of the mark in summing up the conclusions arrived at by the author of the above article as follows:

1. The tincture prepared by diluting a fluid extract is therapeutically less active than one made by the official method.
2. The infusion made by diluting the fluid extract with water is a different product from the official infusion.
3. The fluid extract of digitalis is not a rational or advisable product, because of variation in activity and because it will not contain the whole of the active principles of the drug.
4. The commercial German leaf should be replaced by the more powerful cultivated English leaf.
5. The claims of manufacturers of "so-called standardized" fluid extracts should be looked upon with suspicion.

We think that a tincture *can* be made by diluting the fluid extract, which will be equal in every respect to one made by direct percolation of the drug. This statement presupposes that the fluid extract diluted shall contain all the medicinally active constituents of the drug from which it was prepared. That such a fluid extract is easily obtainable we shall prove later.

If the fluid extract be prepared by the U. S. P. menstruum (63 per cent. (approximate) alcohol), and the diluent be the U. S. P. tincture menstruum (47½ per cent. alcohol) there will be a slight precipitation, but such precipitation will consist almost wholly of inert extractive matter; even this precipitate may be avoided by employing a diluent which contains sufficient alcohol.

If the fluid extract happens to be one prepared by some "pharmaceutical manufac-

turer" there will be found on the label a formula for preparing the tincture, which directs the use of a diluent of the *same alcoholic strength as the finished fluid extract*, and with which the latter will be almost or perfectly miscible.

The writer referred to does not lay so much stress upon the possible precipitation of active constituents as upon the supposition that "the fluid extract and tincture contain most probably all four principles,"\* but in view of the dissimilarity of menstrua and process, in *different relative proportions*.

If this supposition be correct we are laboring under a great delusion, and we think the compilers of the Pharmacopœia are at fault, because we believe that it was intended that in all instances the fluid extract and tincture of the same drug should contain the same active constituents, in different *quantity*, but not in different *relative proportions*. If this were not so the drug would not be exhausted of its principles, and the preparations would not be true fluid extracts or tinctures.

It makes no difference whether the active constituents of 1000 grammes of drug be disseminated through one pint of liquid or through ten pints, they exist in the same *relative proportions*.

The reason why a tincture menstruum is made weaker than the corresponding fluid extract menstruum is that the former makes up its lack of solvent power per cubic centimeter by a corresponding increase in volume.

The conclusion that the preparation of an infusion by diluting the fluid extract is both dishonest and inexcusable, commands our hearty endorsement; this becomes a plain case of substituting a preparation of different physiological effects from that of the one ordered.

When digitalis is extracted by an alcoholic menstruum of proper strength, *all* of the active constituents of the drug are dissolved; when the drug is extracted by warm water certain of the active principles (digitonin and digitalein) enter into solution, and the greater part of the undesirable ones (digitoxin and digitalin) are left in the marc. The great difference between the two preparations becomes at once apparent when the effects produced by their administration are compared.

We do not think fluid extract digitalis should be regarded as irrational because of variations in activity of commercial samples. All fluid extracts are open to this criticism,

and the only remedy for such variation as may be due to natural causes and to faulty manipulation is to subject the finished product to some process whereby its activity may be estimated and properly regulated. As such process is beyond the means of the average pharmacist, in the case of digitalis he may take comfort in the fact that if he applies the U. S. P. process skilfully, and assures himself that his drug is of good quality (as indicated by its physical properties and the price), he will obtain a fluid extract which will in nearly every instance satisfy his medical patrons.

If the pharmacist uses inferior drug, and the manufacturers of "50-cent" fluid extracts follow his example, it will not mend matters to discard the stronger preparation, because both will continue to use the same drug in preparing tinctures and infusions.

Neither should we discard the fluid extract because it appears impossible to make it of the full theoretical strength. As above intimated, the U. S. P. product seems to meet most demands; but if the physician desires a fluid which fully represents the drug, one in which no heat has been employed, he can easily obtain it in a "commercial product," made by a reputable manufacturing chemist, of the choicest drug, by the process of repercolation, and the activity of which has been measured by physiological tests on animals.

We do not concede the advisability of discarding the commercial or "German" leaf for the specially prepared, cultivated English drug. The best grade of fluid extracts on the market are powerful enough; and any advantage, if there would be any, gained by employing the cultivated leaf would hardly offset the increase in cost of crude material. If it were desirable to employ the most powerful drug we should specify the *Digitalis ferruginea*, which is said by Goldenburg to possess ten times the activity of the *D. purpurea*. The British Pharmacopœia specifies "leaves of *Digitalis purpurea* gathered from the wild plant of the second year's growth."

We suggest that the proper remedy lies in exercising more care in selecting a prime quality of commercial drug.

Manufacturers usually confine their claims of assay to a statement that the fluid extract contains a certain percentage of "extractive." This *standard* is of value only in that it insures the thorough extraction of the drug employed.

The active constituents of digitalis are glucosides, which are of such delicate con-

\*Digitalin, Digitoxin, Digitonin and Digitalein.

stitution that they cannot be extracted and estimated by chemical means such as are ordinarily employed in standardizing toxic drugs. There is a method by which the preparation of this drug can be valued and consequently adjusted, viz., to test them *physiologically,—to make their action as developed in animals, when administered in proper proportions, the measure by which to compare them with standard samples applied in like manner.*

Such testing is expensive and requires skilled operators, but the cost sinks into insignificance when we consider the importance of positive assurance as to the activity of the product.

To recapitulate, we think that:

The fluid extract of digitalis, skilfully made by U. S. P. directions, using good drug, is powerful enough for all practical purposes.

By the employment of prime commercial drug, the repercolation process, and testing by physiological means, a fluid extract is produced which is beyond criticism.

The substitution of expensive cultivated drug for the commercial wild-grown article is unnecessary provided due care be exercised in selecting the latter.

As some pharmacists and some manufacturers of pharmaceuticals habitually employ the cheapest drugs the market affords for the manufacture of fluid extracts, they would employ the same drug for the preparation of tinctures, were the more concentrated fluids abolished.

As far as we know, there is only one reliable method of determining the activity of this drug, or its preparations, viz., physiological testing.

The preparation of infusion from fluid extract is irrational and unjustifiable.

A tincture may be prepared from the fluid extract equal in every respect to that made by the official process, provided the fluid extract is of full strength, and provided the diluent contains sufficient alcohol.

#### *SYPHILIS OF THE KIDNEYS AND ITS TREATMENT.*

Until recent times it has been a commonly accepted belief in the profession that symptoms and signs of nephritis occurring during the course of syphilis are due rather to the medicines taken for the cure of the constitutional disorder, particularly mercury, than to the direct or remote effects of the syphilitic virus. This teaching probably dates from Rayer. In the last few years the journals

have contained many reports of renal involvement occurring in the course of syphilis apparently quite independent of mercurial treatment, and it is deemed established beyond controversy that the kidneys may be attacked both in the secondary and tertiary stages of the disease.

The frequency with which such involvement occurs has, however, by no means been determined, and the writings of those who have devoted most time and attention to this subject throw little light on this matter, since their conclusions vary widely.

Geraud reports albuminuria in twenty-one out of forty-six cases of syphilis, all in the primary; eight in the secondary; and two in the tertiary stage. Antisyphilitic treatment caused disappearance of the albumen. Harrison states that albuminuria occurs in from three to eight per cent. of all cases of secondary syphilis. Peterson holds that the kidney is affected during the secondary stage in four per cent. of cases. Wagner found sixty-three cases of syphilitic nephritis in 9000 autopsies. It is thus evident that no reliable estimate can as yet be made as to the frequency of renal involvement.

The symptomatology is, however, clearly understood. Early secondary syphilis of the kidney develops usually about two or three months after a chancre, the first symptom often being edema or unusual frequency of urination. Associated with this there may be headache and general digestive disturbances. The urine on examination shows albumen, blood, and epithelial, and hyaline and granular casts. Under treatment resolution is prompt; without treatment the acute nephritis is likely to become chronic.

The pathological changes are those characteristic of acute nephritis. The affection seems to be vacillating, and in its course closely resembles scarlatinal nephritis.

The late nephritic lesions are characterized by symptoms absolutely like those of chronic nephritis. Pathologically the kidneys are found to show amyloid degeneration, interstitial inflammation, and the development of gummata; these various changes are often associated. The amyloid change seems to be the most common one.

Welander (*Archiv für Dermatologie und Syphilis*, band xxxvii, heft 3), after an exhaustive study of the question concludes, in regard to nephritis of secondary syphilis, that although a slight specific albuminuria may occur with the outbreak of secondary syphilis or during recurrences in this period, this

is rare. It is very rare to find an albuminuria demonstrable to nitric acid, and it is extremely doubtful whether this is really a symptom of parenchymatous nephritis. As to the later periods of syphilis, occasionally there develops an interstitial nephritis, under such circumstances that causal relation between it and the specific constitutional disease is probable.

In the later period of the disease there occurs in exceptional cases an afebrile kidney affection characterized by a dirty-brown turbid urine containing a slight amount of albumen, blood, and epithelial cylinders and a large quantity of detritus. This affection of the kidney occurs when gummata are breaking down in other portions of the body, and diminishes and disappears under specific treatment, together with the other tertiary symptoms. It is probable that it is due to breaking-down gummata in the kidney.

Mercurial treatment, especially when it is pushed, causes cylindruria, at times albuminuria, which may be slight or severe according to the idiosyncrasy of the patient. The absence of cylinders and albumen in the urine does not show failure to absorb mercury. It is only by examination of the urine and the feces for mercury that the amount which is absorbed can be determined. The cylindruria and albuminuria caused by mercury are transitory and do not predispose to subsequent kidney affections.

When nephritis has developed, especially the parenchymatous or the interstitial variety of the disease, mercury must be given cautiously; during the course of nephritis mercury is eliminated largely through the feces, at times abundantly through the kidneys, but always to a minimal extent through the saliva.

The prognosis of nephritis occurring during the secondary period of the disease is nearly always favorable. Tertiary nephritis, if of a gummatus type, yields as promptly to specific treatment as do gummata in other parts of the body. When degeneration has proceeded to complete destruction of secreting substance there can be no restoration of tissue, and specific treatment avails only in preventing further extension of trouble.

The communication of Welanders again raises doubts in regard to therapeutics which seemed in a fair way to be cleared by recent records of renal syphilosis. His conclusions, based on a thorough study of the matter, seem to show that nephritis due to secondary syphilis is rarer than that occasioned by full

doses of mercury. The important lesson to be drawn from the study is that examinations of the urine should always be practiced in cases of syphilis; that when albuminuria and cylindruria are observed the practitioner should carefully consider as to whether this is not due to drugs rather than to the disease for which the medicine is administered; that toxic effects occur readily when the kidneys are crippled, and hence mercury must be administered with extreme caution. It seems scarcely necessary to state that in addition to specific treatment cases of syphilitic nephritis should receive the hygienic and hydrotherapeutic and medicinal care appropriate to inflammation of the kidneys when it is due to other causes.

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## Reports on Therapeutic Progress

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### EXPERIMENTAL RESEARCH INTO THE ACTION OF *VIBURNUM PRUNIFOLIUM* (BLACK HAW).

SHENNAN contributes the results of a literary and experimental study of this drug to the *Edinburgh Medical Journal* for November, 1896. He concludes that in habitual abortion not caused by syphilitic infection or by fatty placenta, undoubtedly good results seem to follow the use of *Viburnum prunifolium*. In threatening abortion, whatever the cause, and at whatever period of gestation, if the case is got soon enough, it seems to be very successful. In dysmenorrhea, functional, spasmodic, ovarian, or attended with menorrhagia, it often cures; if there is flexion or stenosis it gives great relief, though of course it cannot cure. In the menorrhagias and metrorrhagia of the menopause and in the nervous disorders of that time it is very beneficial. After-pains are so readily relieved by it that some (e.g., Auvard) consider that its use is dangerous unless all clots are cleared out of the uterus previously. It may be used in the diagnosis of false pains, speedily relieving them. It is also used with success in colicky diarrhea and in dysentery. Some even claim that it has a curative effect on cramps of voluntary muscles.

In his experimental tests he found that in mammals, warm-blooded animals, owing to the difficulty of giving a large enough dose hypodermically, there is no marked effect, except drowsiness and some lessening of motor power. If the substance be introduced into the heart directly, there is rapid lowering of blood-pressure to about one-half the nor-



mal, with slow return to near the normal as the drug is eliminated.

Although too much reliance must not be placed on experimental results in cold-blooded animals, including man, we may be allowed to take something from these results and use them as probably applicable. Thus, there is probably some diminution of reflex irritability, a quieting effect on involuntary muscle, possibly some lowering of blood-pressure—which even though small, might afford relief in congested conditions. Then—a very important point—there is the effect of the valerianic or viburnic acid in neurotic and hysterical conditions.

In the Pharmacopœia there are many drugs capable of bringing about all these desired effects. Why, then, use *Viburnum prunifolium*? Opium is one of our sheet-anchors, but then there are dangers and inconveniences attending its use: the patient may acquire the opium habit; the constipation caused by it is very troublesome, and it is very toxic. Viburnum has similar good effects, though not so powerful; it is a good form in which to administer valerianic acid; its effect upon unstriated muscle, though not so great as that of opium, gives the relief necessary; and it has scarcely any effect in causing constipation.

Toxic effects have only been noticed with very considerable doses. Herrick has seen disturbance of vision, dryness of mouth, headaches; and Wilson has observed similar conditions, but these followed doses larger than are usually administered.

#### NOTES ON THE EVOLUTION OF TREATMENT OF UTERINE FIBROIDS:

In a paper contributed by JOHN WALLACE to the *British Medical Journal* of October 31, 1896, the writer lays down the following propositions in connection with this subject:

Uterine fibroids had a trivial mortality compared with ovarian tumors in the times when both were left alone, or tapping only was resorted to. Death was almost inviolable in the one, and rare in the other.

The same law holds now, but ovariectomy has stepped in and the mortality has been reduced by over ninety per cent., while on the other hand supravaginal hysterectomy has enormously increased the mortality of uterine fibroids. What the percentage has been we shall never know, but it has been great.

Uterine fibroids are subject to degenera-

tive changes—fatty (the most frequent), myxomatous and cystic (the next frequent), sarcomatous (which probably existed from the beginning), and calcareous—the rarest of all if we except the carcinomatous, which the writer has never met.

In uncomplicated uterine fibroids, avoid all surgical interference, and trust to protecting the tumor from injury. The better the patient's health, the less the tumor grows. Deobstruents of calcium chloride, potassium, or sodium bromide, with syrupus ferri iodidi, have again and again reduced the size of large tumors. This view has been forced upon the writer by observation. The climacteric is invariably accompanied by atrophic changes, and in one instance a tumor—the largest he ever watched—reaching as high as the ensiform cartilage, became as small as a mandarin orange.

Large fibro-cystic tumors never atrophy, but their tendency is to increase in size. Extirpation is therefore the rule whenever their nature is ascertained.

Surgical interference is demanded: (a) in fibro-cystic growths; (b) in sarcomata in the early stages if possible—the longer the tumor is left, the greater the risk of recurrence; (c) in cases where the tumor permanently interferes with the action of bowel or bladder, with or without pain, or inflammation giving rise to adhesions to superincumbent and pelvic viscera; (d) when ascites is a sequela, or when, from overdistention, direct or reflex symptoms arise which imperil the cardiac function or in any way threaten the life of the patient. Small fibroids sometimes give rise to chronic peritonitis and ascites, necessitating extirpation; and necrosis of a tumor from injury or impaction necessitates immediate extirpation.

Hemorrhage alone does not demand extirpation by laparotomy. It can always be checked. The writer has never seen a case succumb to it, but if it is accompanied by pain, inability for life's work, etc., it may justify operation at the request of the patient, but it would not justify the surgeon in recommending it.

Fibroid uterine tumors may complicate pregnancy and have to be removed by vaginal hysterectomy when obstructive, or by abdominal section. They take on the increased growth of the impregnated uterus, and grow rapidly, but either the uterus overreaches and controls them, and pregnancy goes on to term, or abortion results. Although laparotomy and extirpation during

pregnancy has been successful, it is not an operation to be recommended generally.

If tumors can be removed by vaginal hysterectomy, with well marked symptoms as a justification—for if you give Nature time she often expels them—the direct operation by incision of the capsule, enucleation, and avulsion by torsion, ecraseur, or scissors, is to be speedily done. The old plans of opening the capsule by potassa fusa (Simpson and M. Duncan), and incision and waiting in expectation of expulsion by uterine contraction, have been abandoned. Failure, or septicemia, a hurried attempt at extirpation, and success uncertain—such were the results.

The abandonment of the ligature of the pedicle, and the substitution of the clamp, retarded the advance of ovariectomy for twenty years. Its reintroduction upon true surgical principles, the flushing of the abdominal cavity with abundance of warm water not even sterilized, and perfect drainage, have made ovariectomy a simple and safe operation in normal and uncomplicated cases. In hysterectomy the existence of a pedicle long enough was but rarely met with, and consequently in the early days the abdomen was often enough opened and closed and the case declared unfit for further interference. Koeberlé's ecraseur deposed the clamp where a short pedicle of the uterus permitted the wire to be tightened up and the hemorrhage controlled. But even that method proved clumsy in most instances, unfit and unsurgical, for it left a sloughing mass in contact with raw absorbing and peritoneal surfaces, and so gave rise to septicemia and death.

The pampiniform plexus, enlarged in some cases to the thickness of the wrist, the opening of which would be as immediately fatal as dividing the vena cava, has to be ligated by opening the capsule of the tumor, and detaching it so as to get the finger behind the vessels. Two ligatures are applied, and the vessels are divided between them. This is done on both sides. In a typical case the tumor occupies the whole of the plane of the pelvic brim. Taking care to avoid bladder and colon, cecum and sigmoid flexure, a circular incision is carried round the tumor, the lines of incision meeting at the place where the capsule was opened for the ligating of the vessels. Enucleation is now carried out; the uterine clamp (Dr. Wallace's) is then applied over the stump of uterus or cervix, and the tumor is cut off by a probe-pointed bistoury and so got out of the way. Any vessels are now picked up and tied, and the

parts well flushed with warm water. The intestines are held in position by an apron of antiseptic gauze, and the long abdominal incision partly closed by vulsellum forceps, etc. The broad ligaments are then brought together by catgut sutures in the middle line, right up to the abdominal incision and about an inch from its lower extremity. Thus a new Douglas' pouch is formed, and the stump of the uterus and bladder are left outside the peritoneum in a separate compartment. After flushing until the warm water comes back as pure and clear as when introduced, a glass drainage-tube is introduced into both cavities, the peritoneal and extraperitoneal, and the patient is placed in the prone position for twelve to twenty-four hours, or until the drain has nearly ceased. The ovaries may be taken or left. The principle is, not to increase the surgical extent of the operation.

An incision is made through the capsule, detachment is carried out, the pedicle of vascular supply ligated, and the tumor cut off with scissors. The pouch may be stitched to the lower end of the abdominal incision; it takes the part of the extraperitoneal compartment referred to.

When extirpation of the uterus and tumors for persistent urinary retention, pain, invalidism, or excessive hemorrhage, is to be performed, drag up the uterus and tumors from the pelvis; apply Wallace's clamp; ligate the ovarian and uterine vessels on both sides, *pari passu*, and divide each ligated portion of the broad ligament, including the vessels, before tightening up the next ligatures, one on each side—three ligatures on each side of the uterus are usually sufficient; then cut through the intraperitoneal portion of the cervix uteri, above the clamp; seize the stump with forceps, tentatively undo the uterine clamp and see that all bleeding has been controlled—if not, ligate the bleeding vessels; bring the broad ligaments together, make an extraperitoneal compartment, and flush and drain in the usual way.

Cystic ovarian tumors kill, as a matter of fact, if left alone; ninety per cent. recover after operation, and ten per cent. die.

Fibro-cystic tumors of the uterus are less frequently met with, but are equally fatal if left alone.

The true fibromyomata, uncomplicated and giving rise to no symptoms, may safely be left to the *vis medicatrix nature*, and thankful we ought to be that they form the great bulk of uterine fibroids. They take on fatty degeneration and atrophy during involution

of a large uterus after delivery; under obstruct treatment, though rarely; at the menopause, and after, invariably. Those that do not, do not belong to this class of tumors.

#### *THE TREATMENT OF OTORRHEA AND ITS IMPORTANCE.*

DENCH, one of the most progressive of modern otologists, has a paper with this title in the *Medico-Surgical Bulletin* of November 14, 1896. He first considers drainage and syringing, and asserts that while much has been written in favor of securing drainage by strips either of iodoform gauze or of some other antiseptic gauze, inserted into the canal as far as the membrana tympani, his opinion is that this procedure is not applicable in the majority of cases, and his experience has proved it to be so unsatisfactory that he no longer employs it. If these strips of gauze could be frequently changed, the measure would no doubt effect its purpose, but this is obviously impossible, either in private or hospital practice. He therefore prefers the old method of removing the discharge from the canal by the frequent use of the syringe, the irrigation being repeated as often as is necessary to keep the canal free of discharge.

Although it seems a very simple matter to syringe an ear, the operation is seldom done properly by the layman, and is not always successfully performed even by the physician. The fountain syringe is not adapted to the purpose, and either the ordinary piston syringe or soft-rubber bulb syringe should be used. As the removal of the accumulation in the canal is a purely mechanical process, a certain amount of force must be used in injecting the irrigating fluid. As the meatus is formed by two tubes, joining at an angle in both the horizontal and vertical planes, the deeper portion of the canal cannot be cleansed by a column of fluid unless these angles are obliterated and the axes of the two portions are brought into the same straight line. This is effected by drawing the auricle upward, backward, and outward, during the operation; by this manipulation the fibrous meatus is made to conform to the direction of the bony canal.

It is also important to remember that the tip of the syringe must be introduced into the meatus, instead of being held close to its mouth. Care should be taken that the force applied in expelling the fluid from the syringe does not crowd the tip of the instrument against the walls of the meatus. The portion

of the syringe introduced into the canal should be absolutely immovable, as otherwise the meatus may suffer from traumatism.

It is also to be borne in mind that in infants the bony meatus is absent, and that the inferior wall of the canal lies in contact with the superior wall. In order to convert this passage into a fibrous tube the walls must be separated by traction upon the auricle in the direction downward, backward, and outward, as in the adult.

The quantity of fluid to be used at each irrigation varies somewhat according to the character of the discharge. Usually half a pint is sufficient for the purpose of cleansing the meatus.

We are next to consider measures to secure asepsis. Given a serous or sero-mucous discharge from the meatus, no matter what its source may be, no further treatment is necessary to obtain a perfect cure than to prevent infection of this fluid as it lies in the external auditory canal. Frequent cleansing of its surface diminishes the chances of infection, but the danger is still further reduced if the cleansing fluid is antiseptic in character. It need scarcely be said that the syringe must be surgically clean, and that a separate receptacle should be used for receiving the washings, instead of allowing the return current to flow into the vessel containing the irrigating fluid. This absurd error often occurs unless it is guarded against by giving special directions.

The fluid to be used is largely a matter of choice. Personally the writer prefers an aqueous solution of bichloride of mercury, 1 to 3000 or 1 to 5000. The fluid should be warm, but not hot, and the comfort of the patient is the best guide to indicate the correct temperature. Many other antiseptic solutions are, no doubt, as good as the one mentioned. Peroxide of hydrogen in these cases is, however, objectionable, although it is highly recommended by many authorities. The mixing of a solution of peroxide of hydrogen with a purulent secretion is followed by the evolution of considerable gas. The mere ocular demonstration of the activity of this agent, by means of the bubbles of gas which are seen to rise to the surface of the fluid as soon as the injection is made, in no way establishes its germicidal properties. The sudden liberation of a large volume of gas in the middle ear, where drainage is imperfect, is not free from danger, and for this reason the agent is contraindicated in these cases. Another objection is the irrita-

tion of the canal which the protracted use of the substance causes.

After cleansing the canal in the manner described, it should be maintained in as aseptic a condition as possible until the next irrigation. For this purpose each irrigation is followed by the instillation of a few drops of a dilute alcoholic solution of the bichloride of mercury, of a strength of 1 to 3000, the following mixture being the one the author usually employs:

- ℞ Bichloride of mercury, 1 part;  
Water, 1000 parts;  
Alcohol, 2000 parts.

Under the use of these measures a serous or sero-mucous discharge will ordinarily cease, whether it be the result of aspergillus of the canal or of an acute catarrhal otitis media, either in a case in which the membrana tympani was intact before the acute attack, or when this structure has been partially destroyed by a previous purulent inflammation. In other words, prevent infection from without, and recovery is prompt.

If the medical attendant is familiar with the use of the head-mirror, it is, of course, wise to dry the ear carefully at least once daily by means of cotton pledgets, and to apply the alcoholic solution, above mentioned, to the walls of the canal and to the membrana tympani by means of the cotton-tipped applicator. If the membrana tympani is largely destroyed, the same application should be made to the internal tympanic wall. It is hardly necessary to say that, in making such applications, the surgeon's fingers should be carefully cleansed, and that all instruments introduced into the meatus must be in an aseptic condition. It should also be remembered that under no circumstances is the canal to be occluded with cotton: the pledget soon becomes saturated with the discharge, and infection of the contiguous walls of the canal easily occurs. Powders should not be introduced into the canal to check an otorrhea; when mixed with the secretion they form hard masses which may firmly occlude the channel and prevent free drainage. The same measures should be applied in cases of purulent otorrhea, and will prove efficient in the case of furuncles within the meatus, preventing repeated infection of the adjacent parts of the canal.

In acute purulent otitis media the treatment suggested is the most advantageous, unless the surgeon can determine the exact local condition by speculum examination. The drainage in these cases is often imper-

fect, and free incision is necessary in order to secure relief. Until this can be done, however, the systematic irrigation of the canal, and measures for maintaining an aseptic condition of the region, are of the greatest value.

In chronic purulent otitis the same measures should also be employed. In these cases, however, drainage is often imperfect, from the retention of secretion in the middle ear by the remnants of the membrana tympani or by the various reduplications of the mucous membrane lining the tympanic cavity. Here, also, free incision is necessary to secure a perfect drainage.

Again, the products of suppuration may be confined by the development of granulation tissue within the middle ear. In order to perfectly drain the cavity, this tissue must be removed either by means of the sharp curette or by the cold-wire snare. If the inflammatory process has exhausted itself, free drainage and asepsis will effect a cure. If, however, the process is still active, or if all necrotic tissue has not been evacuated, the discharge may continue, and the suggestions regarding treatment already given will merely reduce it in quantity. The author refers particularly to cases in which the bony structures within the tympanum are carious; this process may involve the ossicular chain alone, or may extend to the bony walls of the tympanum as well.

It is to be remembered that there is no such thing as "special surgery." The same broad principles which apply to caries and necrosis in other parts of the body are equally applicable to a similar condition within the middle ear. Every vestige of diseased bone must be removed before relief can be obtained. The exact procedure to be adopted must vary with the local conditions presented by individual cases. Where the caries is limited to the ossicles, and to those portions of the tympanum which can be easily reached by instruments introduced through the meatus, excision of the remnant of the ossicular chain and thorough curettement of the tympanic cavity will afford relief. Where, however, the process has extended further, and has invaded the most remote parts of the tympanic vault, and even the mastoid process, an intratympanic operation will not give relief, and some modification of the more radical procedure advised by Stacke (*Archiv. für Ohrenheilk.*, xxxi, p. 201) will be necessary.

The Stacke operation consists in detaching the auricle and fibrous meatus from the bony

structures, and drawing the soft tissues forward, so as to expose the margins of the bony canal. The mastoid antrum is then entered in the usual way, and the partition between the canal and the opening in the mastoid is broken down, and the superior wall of the bony meatus removed by means of the chisel, thus giving free access to the tympanic vault and mastoid cells. Every vestige of diseased bone is taken away, the parts being under direct ocular inspection. The posterior wall of the fibrous canal is split longitudinally, and the flaps thus formed are turned backward into the bony cavity, thus converting the external auditory meatus, the tympanum, the tympanic vault and the mastoid cells into one large cavity. The auricle is then replaced, and the incision behind the ear sutured. All parts of this space can be seen by speculum examination through the canal, and, if all diseased bone has been removed, a satisfactory result can be confidently expected.

Which operation should be selected in any individual case depends, as before stated, upon the extent of the lesion. If properly selected, the simpler operation of removal of the ossicles and curettement of the tympanum gives results which are equally as satisfactory as those obtained by the more radical operation.

#### ANTIPYRIN IN THE TREATMENT OF WHOOPING-COUGH.

In the *Gazette Hebdomadaire de Médecine et de Chirurgie* of October 22, M. LeGoff calls attention to the results obtained by many authors with this treatment. Dubousquet-Laborde employed it in 300 cases, 196 of which were cured or benefited. The average duration of the treatment was thirty-five days. The amounts given daily varied from five to fifteen grains for children up to three years of age, and from thirty to sixty grains for older children and adults. The same results were observed by Geffrier, De la Jarrige, Jasiewicz, and others. Richardière has also employed antipyrin with satisfactory results; it diminished the number of coughing attacks one-third in the majority of cases, although it never suppressed them completely; in two cases in which the patients vomited profusely it had no effect on the vomiting; he concluded, however, that antipyrin exerted a positive action, but that it was not superior to belladonna.

Whenever the renal functions are not impaired, says the author, M. Lemoine prefers

this medication to any other, as its action is surer and more rapid. To small children he gives from four to eight grains in enemata every twenty-four hours, and to children from three to six years of age and older, twenty-four grains in six doses.

Von Genser enumerated the results obtained by him in 200 cases, in which he employed two methods of treatment: Insufflations of powdered medicaments into the nasal fossæ, and antipyrin administered by the stomach. With the first method few results were obtained, and the duration of the treatment was at least forty-three days; in the second the results were more conclusive. Administered in quantities of two grains a day for each year of the child's age, antipyrin always diminished the number of coughing attacks and lessened their violence. Recovery was obtained in twenty-four days, and from this the author concluded that antipyrin shortened the duration of the disease. Many other instances are cited by M. LeGoff to demonstrate the efficacy of this treatment.

In regard to its mode of action, he says the drug is essentially a nervine, and acts as an analgesic and antispasmodic. By diminishing the irritability of the superior laryngeal nerve which, by reflex, produces the cough, it arrests the attacks of coughing and prevents serious symptoms which the intensity of the attack may cause. This action on the nervous element of the cough is the least disputed of the effects of antipyrin in whooping-cough, and was observed by M. LeGoff himself in eighteen patients, in seventeen of whom the number of attacks and their intensity diminished considerably, and in nine recovery occurred in less than twenty-five days, thus cutting short the duration of the disease very much.

In the second place, antipyrin is an antiseptic. Brouardel and Loye have shown that it is antizymotic. A five-per-cent. solution hinders the development of microbes and attenuates their virulence; its action has been manifested as well in laboratory experiments.

Concerning its action on the catarrhal element of this disease, says the author, Mouvet affirmed that if it was given in the first stage of the affection it arrested the catarrh; Soula also observed similar results. M. LeGoff himself administered antipyrin to a patient during the first stage of the disease, and not only the attacks of coughing, but the catarrh, disappeared in seven days. In his other

patients he remarked that the catarrh disappeared under the influence of this treatment more rapidly than is ordinarily the case after the cessation of the attack, and on this point he is corroborated by other observers.

M. LeGoff states that the only symptom he has observed to follow the use of antipyrin is albuminuria, which appeared in two cases; it disappeared rapidly, however, after the cessation of the use of the drug and the establishment of a milk diet. Many physiological experiments, he says, and the majority of clinical observations, demonstrate that antipyrin is eliminated well in animals and in persons with healthy kidneys; children, particularly, eliminate it easily. Cordes, Taylor, Dubousquet-Laborderie and others cite instances to show that antipyrin causes nausea, vomiting, with epigastric pains, and anorexia. It is not known, says M. LeGoff, whether these symptoms are to be imputed to any impurities in the drug, to an excess of action, or to peculiar individual susceptibilities. M. Dubousquet-Laborderie thinks the former play a certain part in giving rise to the symptoms observed. However, says M. LeGoff, the benignity of these symptoms is sufficiently assured, and we need not fear to give antipyrin even in large doses. It is prudent, however, to watch the elimination carefully, and, before giving the drug, to ascertain the condition of the renal filter.

In order to prevent any injurious action on the digestive tract, the drug is given in Vichy water as follows:

- ℞ Antipyrin, 15 grains;  
Gooseberry syrup, 300 grains;  
Vichy water, 2½ ounces.

M.

This quantity is to be taken in twenty-four hours, a dessertspoonful after each coughing attack. Besides this, M. LeGoff recommends the ingestion of milk or bouillon after each dose of the solution, as the antipyrin is thus very well tolerated.—*New York Medical Journal*, Nov. 14, 1896.

#### TREATMENT OF PERNICIOUS ANEMIA.

Our notions concerning the nature of pernicious anemia have undergone various modifications since it was recognized by Addison in 1855 and by him designated idiopathic, and its subsequent description by Biermer, in 1868, as an independent affection. A final decision cannot yet be given as to whether the disorder is dependent principally upon excessive destruction or upon deficient blood-

production, but the statement can be safely made that the affection is no longer looked upon as primary or idiopathic, and doubt may exist in some cases as to its progressive and pernicious character in the sense in which it has been customary to employ these terms.

A growing experience has taught that profound and fatal anemia may result from a variety of causes, sometimes perfectly obvious, but at other times so obscure as to escape detection at the hands of the keenest clinical observer. Sufficient evidence has accumulated to justify the conclusion that in a not inconsiderable proportion of cases the blood depravity results through the gastro-intestinal tract, perhaps in consequence of poisonous products there generated, or by infection, or from the presence of parasites of other character.

These advances in our knowledge of the etiology of the disease have not been without their influence upon a selection of the means employed in its treatment. Thus, whenever a source of hemorrhage or other wasting discharge can be discovered, the first essential step is to secure its control. When animal parasites are found to be present in the intestinal tract, their extrusion must be effected by appropriate means. When it is suspected that the condition arises in consequence of intoxication, resulting from some failure in the normal digestive and assimilative processes, measures calculated to aid gastro-intestinal digestion and disinfection will be indicated; if the intoxication be dependent upon the retention of metabolic products intended for excretion, laxatives—and especially calomel and salines—may be used with advantage.

Upon the assumption that the excessive hemolysis in pernicious anemia takes place as a result of the presence of toxic matters in the gastro-intestinal tract, Gibson was led to prescribe two-grain pills of beta-naphthol, two or three daily, in the treatment of a case of that disorder, with the happiest results.

Acting upon the same thought and adopting a suggestion of Fraser, Dieballe employed salol successfully in a similar case, in which the usual remedial agents had been employed without avail. The patient was a laborer, fifty years old, who suffered greatly from weakness, and presented a yellowish discoloration of the skin and conjunctivæ, and pallor of the lips and mucous membranes, with a reduction of the red blood-corpuscles to 1,120,000 per cubic millimeter, of the white to 2600, and of the hemoglobin to 43 per

cent. At the age of thirty-one he had had a like attack, from which he recovered in the course of six months, and again another at the age of forty-five. The red blood-corpuscles varied greatly in size and shape, and some were nucleated. Of the colorless corpuscles, 55 per cent. were polymorphous neutrophiles, 21 per cent. lymphocytes, 13 per cent. large mononuclear cells, 8.5 per cent. transitional forms, and 2.5 per cent. eosinophile cells. After arsenic, bone-marrow, iron, inhalations of oxygen, and quinine, singly and in combination, had been employed for more than four months without appreciable benefit, salol was given in doses of fifteen grains five times a day. Unpleasant symptoms arising, the frequency of administration was reduced to three times a day. The treatment was continued thus for three months, at the end of which time the red corpuscles had increased in number to 4,200,000 per cubic millimeter, the colorless corpuscles to 7000, and the hemoglobin to 60 per cent., while a gain in weight of thirty pounds had been made. Of the colorless corpuscles, the polymorphous neutrophiles were increased to 68 per cent., and the large mononuclear and transitional forms to 8 per cent., the others undergoing practically no change. The presence of eosinophile cells in about normal proportion was looked upon as indicative of maintained functional activity of the bone-marrow in the process of hemogenesis, and to this extent of favorable prognostic omen.

In cases in which the blood-forming organs are believed to be at fault, bone-marrow may serve a useful purpose. The influence which this substance is capable of exerting is still undecided, but in a disease like pernicious anemia, in which no measure can be expected to act with certainty for good, the patient should be given the advantage of every doubt, and no remedy should be neglected which may even doubtfully render a service. In the way of agents that aid in blood-making, the first place must be given to arsenic, given in doses as large as the patient will bear and for a long period of time. Iron is not capable of the same good, but may find a useful place in the treatment. Inhalations of oxygen have at times proved a valuable therapeutic adjunct.

It goes without saying that the diet should always be the most nutritious possible, special care being observed to maintain digestive integrity; while no general hygienic precaution should be neglected. Moderate and gentle exercise in the open air, within the limits of

fatigue, and exposure to sunshine, should be judiciously indulged in. Symptomatic indications must be met as they arise. Strychnine in moderate doses will almost always serve a useful purpose.

In attempting to reach a decision as to the efficacy of any plan pursued in the treatment of pernicious anemia, it is to be borne in mind that periods of transitory improvement, of varying duration, are often a part of the natural course of the disease, so that too much importance must not be attached to the favorable results that may follow the special line of medication employed. Even if such improvement continue for a long time, the conclusion must not be too hastily reached that the disease is cured.—Editorial, *Medical Record*, Nov. 14, 1896.

#### TREATMENT OF DIABETES.

At the recent French Congress of Internal Medicine (*La Sem. Méd.*, August 19) Mousse of Toulouse said he had tried antipyrin with the object of diminishing the amount of sugar, uric acid, and urea, but the diminution had only been fleeting. He had come to the conclusion that antipyrin should not be prescribed for diabetes. Beer yeast was of no use in his hands. He has tried pancreas in the fresh state in daily doses of thirty grammes, but with no better success. In his opinion the cornerstone of treatment in diabetes is diet; if drugs are used, their effect should be closely watched, as they are not infrequently hurtful.

In discussing the communication, Spillmann said he had treated two cases of wasting diabetes with injections of pancreatic juice. Each time the injections were given the sugar diminished and the weight remained stationary.

Mousse admitted that each time he had given pancreas it had seemed to him that loss of weight was retarded.—*British Medical Journal*, Sept. 26, 1896.

#### CREOSOTE AND COD-LIVER OIL IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

CHTANGUEE, in a communication to the Medical Society of Yalta during the Sixth Congress of Russian Physicians, made the following statements:

Both creosote and guaiacol are to be considered as symptomatic remedies, exercising a powerful influence in tuberculosis, not only

when it is pulmonary, but when it involves other portions of the body. It is, however, in pulmonary tuberculosis of the chronic type that they give their most signal results, being of comparatively little value in acute pulmonary tuberculosis or "galloping consumption." The tuberculous process when in the caseous condition is particularly favorable to the use of the drug, but, on the other hand, the remedy is comparatively useless in cases where the process has advanced and cavities are forming. Over tubercular laryngitis, creosote and guaiacol have very little influence, and they should never be prescribed in cases of tubercular enteritis. Should any dyspeptic symptoms arise, these drugs must be discontinued, and Chtanguée asserts that hemoptysis is a contraindication to their use. Further, he asserts that creosote and guaiacol exert no influence upon the number of tubercles contained in the sputum. Neither do they possess much influence as prophylactics. He recommends the carbonate salts of creosote and guaiacol, since they have not the disagreeable odor and taste of the more crude preparations; the dose he suggests is from thirty to sixty minims a day. Quoting the reports of those who are most enthusiastic as to the value of creosote in tuberculosis, he calls attention to the results of Notznikof and Bouchard, who claim forty-seven per cent. of cures or marked ameliorations from its employment.

In regard to cod-liver oil, he believes that its administration to cases not far advanced nearly always results in a marked gain in weight when it is given in the dose of two to five drachms a day. He believes it also exercises an antipyretic, as well as a resolvent and alterative, influence, modifying the tubercular lesion. Hot weather, however, contraindicates the employment of cod-liver oil, and it is sometimes difficult under these circumstances to keep a bottle which has been opened in fresh condition. It goes without saying that the oil has no beneficial influence so far as hemoptysis is concerned.—*La Médecine Moderne*.

#### THE USE OF HOT-AIR BATHS IN ALBUMINURIA.

In *La France Médicale* of September 4, 1896, CARRIEU calls attention once more to a very old method of treating albuminuria by hot-air baths. He does this because, considering its value, this method is too much ignored. The profuse sweating which the hot-air bath produces relieves the body of

many albuminoids, and thereby is of value to the kidney. During the administration of the bath the patient's head should be in air of ordinary temperature, and plenty of air should be given to him to breathe. The bath should last about twenty minutes, and be repeated every four days or oftener. There is usually, under the bath, a quickening of the pulse and a temperature elevation of one or two degrees. As a rule, however, the respiration is not embarrassed if the patient is given a large amount of air. The disagreeable symptoms which at times come on during earlier treatments—palpitation of the heart, headache, slight elevation of temperature, and perspiration—continue usually for an hour after the bath.

The therapeutic effects directly gained are, first, a slight and temporary diminution of the urine on the day of the bath, followed by a distinct increase in urinary secretion afterwards. The density is decreased. The albumen is also decreased in cases of both subacute and chronic nephritis, but baths are contraindicated where the kidney disease is associated with arterio-sclerosis or nervous or cutaneous lesions.

Carrieu bases his opinion upon the use of this treatment in seven cases.

#### THE TREATMENT OF BURNS IN CHILDREN.

The ordinary treatment of burns, both in adults and children, has been by Carron oil or lime-water and olive oil. In the *Journal de Médecine de Paris* of September 6, 1896, the following treatment is recommended: For superficial burns of the first degree, first a lotion of warm water which has been sterilized by boiling, then application of compresses of tarlatan folded five or six times and soaked in a solution made up as follows:

- ℞ Boric acid, 3 drachms;  
Antipyrin, 1½ drachms;  
Sterilized water, 8 ounces.

Or the following ointment may be used:

- ℞ Boric acid, 45 grains;  
Antipyrin, 15 to 30 grains;  
Vaseline, 1 ounce.

If burns of the second degree the same treatment may be used, but before it is applied the blisters should be drained by nicking them. For burns of the second degree with deeper lesions of the cuticle the part burned should be submerged in a basin containing warm water which has been sterilized by



boiling, and the temperature of this water should be gradually increased as the patient is able to stand it. An antiseptic toilet of the part with water and soap then follows, and after this it is bathed with carbolized water of two-per-cent. strength. For the relief of pain, it is well after this to wrap up the part with a compress of tarletan soaked in a mixture as follows:

- ♯ Saturated solution of boric acid, 1 pint;  
Wine of opium, 1 to 2 drachms.

Or the following ointment may be used:

- ♯ Iodoform, 15 grains;  
Antipyrin,  
Boric acid, of each, 75 grains;  
Vaselin, 2 ounces.

Should a large part of the body be burned, the child may be dipped in a bath prepared in the way just named, and during the antiseptic toilet of the burned parts general anesthesia may be produced by the use of chloroform. After this the parts should be dressed with the ointment just mentioned.

Where the burns are very severe, the part may be dressed with iodoform gauze or iodoform ointment; and if the suppuration has been severe enough to result in sloughing of the part after it has been antiseptically treated in the manner already described, it should be dressed with iodoform, charcoal, and cinchona bark, of each two ounces. It may be necessary to perform amputation after the period of shock has passed by.

#### *THE SUBCUTANEOUS INJECTION OF SULPHURIC ETHER IN THE TREAT- MENT OF HEPATIC COLIC.*

We are told by the *Journal de Médecine de Paris* of September 6, 1896, that KUMS of Antwerp has obtained excellent results from this treatment. The injections were made in the hepatic region, one at noon and the other at night, and were repeated until relief followed. Under this influence the pain decreased, the urine took on its normal color, and after a period of two months the patient was still entirely free from attacks. In another instance, in which the attacks had been unusually severe, the injections of ether repeated morning and night over a period of two days caused a rapid disappearance of the pain and of the characteristic icteroid urine.

In some instances Hoffmann's anodyne may be employed in place of ether itself. Indeed, Kums prefers it to the pure ether, as he thinks its effects are much better.

#### *THE TREATMENT OF TUBERCULOSIS BY THE SALTS OF THE BLOOD.*

STADELMANN has suggested that in a certain number of cases of tuberculosis there is a decrease in the normal saline constituents of the body, and he therefore suggests that it will be of advantage to give to patients suffering from this disease an increased quantity of saline material. Thus, he recommends that the phosphate of sodium shall be given in the dose of thirty grains three times a day, and that subcutaneous injections of six to seven grains of chloride of sodium be used. He asserts that after the treatment there is decrease in expectoration and the objective signs of disease. This treatment is in line with that of several authors, of employing artificial serum or saline fluid in the treatment of other infectious processes.—*Bulletin Générale de Thérapeutique*, Oct. 23, 1896.

#### *A DISCUSSION OF THE TREATMENT OF MENTAL AND NERVOUS DISEASES BY ANIMAL EXTRACTS.*

The *British Medical Journal* of September 26, 1896, contains a discussion, opened by ALEXANDER ROBERTSON, on this topic.

Before considering the group of therapeutic agents which is the subject of his paper, the writer names other special methods of treatment which he has used in his practice:

1. Heat and cold to the head at graduated temperatures. In some cases of insanity, recovery was at least largely due to this mode of treatment.

2. Mechanical stimulation of the brain and membranes by percussion of the skull. This has conduced to the recovery of some patients.

3. Electrization of the brain through the medulla. One electrode, passed along the floor of the nostril, rests on the cervical spine; the other is moved slowly over the convexity of the head. He has not yet used this procedure in the insane, but is now recording a case of diabetes insipidus cured under it.

4. Psychical—combined emotion and suggestion. The rapid recovery of a patient after mental shock, under this form of treatment, is referred to.

5. Hypnotism. Its power over the nervous system is illustrated by the immediate and confirmed recovery of a patient recently in the Royal Infirmary suffering from hemianesthesia, after other treatment had failed.

Observations have been made on the effects

of the following preparations: The fresh brain of the sheep; cerebrinin, an extract of the cortex; thyroid extract; Brown-Séguard testicular liquid; the thymus gland.

Myelin, or fresh sheep's brain, was given to seventeen patients. Six of them suffered from various forms of melancholia; three from chronic mania; two from paranoia; one from moderate dementia; five from organic diseases of the spinal cord. The most marked result was in the case of primary dementia.

The patient was a stout man, about forty, and was under treatment in the Royal Infirmary. His memory and intelligence were both greatly impaired, and there was some thickness of speech. He also had palsy of both legs and weakness of both arms. After five weeks of ordinary treatment he was not better, but rather worse. Three days after the myelin was begun, there was marked improvement both in mind and body. In five days he could not only stand, but walk a few steps; in nine days he walked up and down the ward; and in less than six weeks after the myelin was begun he left the hospital to resume his employment. Though nearly well, his recovery could not be said to be perfect.

Another patient, suffering from resistive melancholia of three years' standing, and who had not spoken or done any work for a year, within a week after the myelin was begun was knitting and speaking a few words occasionally. This was in January, 1893; since then she has been more or less maniacal. The author considers her incurable.

In a third patient, aged sixty, profoundly melancholic, there was recovery, and it is probable that myelin was very helpful in causing it; but this was not clear, as a little improvement was noticeable before the myelin was begun.

In a case of chronic myelitis the patient's power of walking was markedly improved for some weeks; but this change for the better was not maintained, and he gradually relapsed into his previous condition.

No distinct alteration, either for the better or the worse, was observable in any of the other patients. There was no change in their physical condition when taking the medicine, if we may so call it. Mixed with glycerin, flavored and colored with cinnamon and cochineal, it was not unpleasant to the taste. In one or two patients the larger dose of two teaspoonfuls caused sickness, but one teaspoonful was easily borne by the stomach in all cases.

Cerebrinin—practically the same agent as the last, but in a concentrated form—has been used in five cases of mental disease, two of chronic mania, and three of melancholia. The dose was generally thirty grains daily, in one case sixty. Two of the melancholic patients have distinctly improved; one is unchanged. The maniacal cases became more excited, but in one there is now greater lucidity.

Dr. Auld, a well known pathologist, now of London, in reply to the writer's inquiries, was good enough to state his impressions of the action of myelin and cerebrinin. He began a second time the use of myelin on hearing of the results of his earlier experience with it, and after some months had recourse to cerebrinin on its introduction. In his letter of June 8 last he says: "I do not know what I should exactly ascribe to the substance, but I have had two or three patients who said they were better for it; and in one case, on the medicine being stopped, the patient persisted in returning to it, and invariably declared it did much good, and still goes on with it. This patient suffered from agoraphobia, or dread of the streets and public places. Since taking the cerebrinin this has gone away. There was no organic disease in any case I had."

Thyroid extract in tablet form was given to five patients—three, dementia of years' standing; one, chronic mania. There was no mental improvement in any of them except the melancholic, but she soon relapsed. All lost weight, from  $9\frac{1}{2}$  to  $11\frac{1}{2}$  pounds, except one, a case of chronic mania, who gained 1 pound.

Brown-Séguard's testicular liquid was used in two cases, women about fifty, the one suffering from stuporous melancholia, the other from paranoia but moderately intelligent. Both were of years' standing. The contents of five tubes were introduced into the system on successive days by subcutaneous injection in one patient; seven in the other. There was no mental change whatever, nor was there any constitutional disturbance or more than trifling local effect. Apparently, the author states, he might as well have injected so much water.

Thymus-gland tablets were not used in mental disease. In cases where they were used the reduction in hemoglobin was marked—forty per cent.—and the increase of urea from three to five and one-half grains per ounce of urine in the course of seventeen days, three to six tablets daily. The patient, a boy aged

fourteen, suffered from lymphadenoma in a moderate degree. The morbid condition did not improve.

The statement by Robertson in an article published in 1893, in which he recorded his experience with myelin to that date, fairly expresses the opinion he now holds respecting the therapeutic value of these agents. It is as follows: "The impression remains on my mind that there is a constituent in the brain of the sheep, and doubtless also of other animals, which acts as a stimulus to nerve tissue—cell and fibre—in the human subject in certain morbid states of these structures." Dr. Auld's conclusion is much the same. He says: "I feel fairly confident that there is something in it, but won't commit myself more on the evidence I have. It probably, however, gives some tone to the nervous substance of the brain and cord."

Both agents have the great advantage that they do not weaken the system or seriously disturb the general health, and in using them the patients do not have to remain in bed. As many as four tablets have been given thrice daily. They will probably be found especially useful in the slighter or developing forms of mental disease and general neurasthenia. The more convenient form of tablet will probably supersede the fresh brain, as first used by the author.

His limited experience with thyroid extract does not warrant him in recording more than his general impressions regarding it. The active principle of the gland, probably akin in its nature to iodine, is clearly a powerful agent, and, apart from its special property in such conditions as myxedema and cretinism, increases greatly the metabolic changes of the body generally. This is shown by the rapid tissue-waste that usually, though not invariably, follows its use. It is evidently well fitted to disturb the existing status in insanity, and this is of the highest importance in certain forms and stages. It will probably prove useless in chronic cases where important structural alterations exist in the cerebral cortex, but it is not always easy to tell when this has happened. Its sphere of beneficial action will most likely be cases no longer quite recent, where the pathological changes in cell and fibre are not great, but might become permanent if they continued much longer. Encouraging results have already been recorded by a number of physicians. He names only Bruce and Macphail in England, Clark and Babcock in America; their experience suggests that it should be used more

especially in cases that threaten to become permanent, and, of these, in general mania or melancholia, stuporous states, puerperal and climacteric forms.

As no appreciable result of any kind followed the injection of Brown-Séquard's orchitic fluid, nothing is suggested, unless it be that it is much less active than has been alleged.

Robertson closes with the remark that in these agents, especially the thyroid and cerebral extracts, and the other special methods of treatment referred to at the outset of this paper, we have additional remedial measures, and it seems the duty of the physician in charge of the insane to have recourse to them in suitable cases. By their use, there is good reason to think, we may reduce the amount of incurable insanity.

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#### *PUERPERAL FEVER: ITS PROPHYLAXIS AND TREATMENT.*

The *Journal of the American Medical Association* of August 1, 1896, contains an article on this topic by MONTGOMERY, of Philadelphia, who holds that the first and most important consideration in treatment is prophylaxis. With a correct knowledge of the source of danger, we are the better prepared to meet or avoid it. As the contagion in the majority of cases is conveyed by contact, scrupulous aseptic or antiseptic precautions should be preserved. The nearer the measures of the careful surgeon can be imitated and practiced, the less will be the danger to the patient. The physician in general practice who is in attendance upon sepsis or erysipelas cannot be too rigid in his measures of preparation; indeed, it is a serious question whether he should go from a patient, who is virulently infected with sepsis or erysipelas, to the lying-in chamber. During the writer's term as resident physician in the Philadelphia Hospital in 1875, he went from the surgical ward, where he was in attendance upon cases of erysipelas, to the obstetric department; no special precaution outside of cleanliness of hand and person was practiced. An epidemic of puerperal sepsis developed, in which twenty patients became seriously sick and four lost their lives.

The measures particularly to be practiced are: removal of the coat; baring of the arms to the elbows; careful washing of the hands with soap and hot water, with diligent use of the nail-brush; immersion of the hands in 1-to-

500 bichloride solution, and subsequently in alcohol. The bedding and personal clothing of the patient should be clean, the vulva should be washed with soap and hot water, the bowel emptied by an enema, and an antiseptic douche given. Digital vaginal exploration should be infrequent and only after careful disinfection of the hands. Instruments should be sterilized by boiling. Long-continued manipulation, instrumental delivery of the placenta, should be followed by antiseptic intra-uterine irrigation.

The parts should be carefully cleansed subsequent to delivery, and the uterus left firm and well contracted. Lacerations of the vagina and vulva, unless the tissues are bruised or the vitality destroyed by long-continued instrumental delivery, should be at once sutured; excoriations may be cauterized by carbolic acid. The vulva should be covered with an antiseptic pad, which should be changed as frequently as it becomes soiled. With each changing the vulva should be cleansed with an antiseptic solution. Aside from the immediate post-partum irrigation mentioned, intra-uterine or vaginal douching should not be practiced.

But physicians will reply that they have attended large numbers of confinement cases without such precautions, and no bad results have followed. This may be true. With ordinary precautions the chances are favorable, and much depends upon the condition of the patient. Not every patient, fortunately, to whom contagion is conveyed, yields to its influence. The normal secretions of the vagina are unfavorable for germ-culture. The tract is irrigated by discharge of the liquor amnii and swept clear by the passage of the fetus. Many eminent obstetricians, among whom may be named Lusk, are content to depend upon these conditions in ordinary cases; still, the preliminary douching does not seem useless.

Treatment of infection may be considered as, first, maintenance of the powers of resistance; second, production of immunity; and third, resort to surgical procedures for relief of local manifestations. This classification of treatment has reference to septic conditions. Sæpæmia or putrid intoxication is relieved by removal of the decomposing placenta, portion of membrane, or blood-clot, and subsequent irrigation and drainage.

The diagnosis is determined by the character of the lochia and the digital exploration of the uterine cavity. Decreased or absent lochia, elevation of temperature, rapid pulse,

depressed and anxious countenance, should awaken suspicion of beginning sepsis, whether accompanied or not by local tenderness. A smooth intra-uterine surface confirms the diagnosis.

The rapidity with which the vital forces are depressed contraindicates the use of depleting agents, unless it be the moderate use of purgatives to aid in elimination. Early resort should be made to tonics, stimulants, and easily assimilated and nourishing food. The most efficient stimulant will be found in strychnine, which should be given for effect, and may be administered hypodermically in doses of one-fifteenth of a grain every two or three hours where there is much depression. Opium, morphine and antipyretics should be given with great circumspection. For the control of temperature, cold sponging or the cold pack should be practiced. Pain, whenever possible, should be relieved by the ice-bag.

The natural tendency of disease germs is to develop toxins which are toxic to themselves and render the individual immune to further ravages. The better the nutrition, the more the strength is sustained, the earlier immunity will be secured. In many cases, however, the progress of infection is so rapid, the intoxication so profound, that the patient cannot survive until immunity has become established. As we cannot foretell in any individual the virulence of the infection, nor the possible powers of resistance, the use of antitoxin should be considered as indicated wherever infection is recognized. This is best given by hypodermic injection. These injections of streptococcus antitoxin should be given in doses of twenty-five cubic centimeters once daily for four days. They may be made into the cellular tissue of the abdominal wall, or into the buttocks or thighs. Of course every precaution must be practiced to render their use aseptic.

#### THE TREATMENT OF CORYZA.

In the *Journal des Praticiens* of October 17, 1896, we are told that LEMOYEZ treats coryza in the following manner: The abortive treatment, which must be introduced within the first twelve hours, may, if carelessly employed, produce a certain degree of irritation and in that manner increase the severity of the attack. In this early stage ten drops of the following mixture should be placed upon a sheet of rolled bibulous paper and the vapors be inhaled in much the same way that a cigarette is smoked. The formula is:

- ℞ Pure carbolic acid,  
Pure aqua ammonia, of each, 75 minims;  
90-per-cent. alcohol, 2½ drachms;  
Distilled water, 4 drachms.

In most cases, however, the following powder for abortive purposes is better. It must be very finely pulverized:

- ℞ Hydrochlorate of cocaine, 7 grains;  
Menthol, 4 grains;  
Salol, 75 grains;  
Boric acid, ½ ounce.

A small pinch should be drawn up into the nose every hour.

Should the attack be severe, so that this abortive treatment is likely to fail, it is well to administer a purgative with the purpose of withdrawing congestion from the head, and to produce abundant perspiration by the use of hot alcoholic beverages, liquor ammonii acetatis, or Dover's powder in doses of five to ten grains. Should the permeability of the nasal cavities be obstructed, it may be well every two to five hours to use a spray, with an atomizer, of a hot solution of cocaine in the proportion of one per cent.; or the following powder, which is antiseptic, may be employed:

- ℞ Hydrochlorate of cocaine, 7 grains;  
Menthol, 3¼ grains;  
Salicylated bismuth,  
Sugar of milk, of each, 75 grains.

Should there be reason to fear cocaine intoxication, mentholated sweet oil may be used instead in an atomizer as follows:

- ℞ Menthol, 15 grains;  
Olive oil, 5 drachms.

For the purpose of overcoming any trigeminal neuralgia, and also for the support of the system, a cachet such as follows may be given three times a day, after meals:

- ℞ Hydrochlorate of quinine, 4 grains;  
Antipyrin, 7 grains.

For the purpose of preventing reddening and excoriation of the nares, they should be anointed with borated vaselin.

In regard to the prophylactic treatment of coryza in persons who are exceedingly susceptible to attacks, it is well to remember that any intemperance in relation to alcoholic beverages increases the susceptibility to coryza, and that chronic lesions in the nose should be removed, as they maintain a tendency toward acute inflammation. Particularly is this true of adenoid vegetations in children and hypertrophic rhinitis in adults.

#### THE TREATMENT OF DIPHTHERIA WITH THE ANTITOXIN.

Additional testimony is constantly accumulating to establish beyond a doubt the utility of antitoxin in the treatment of diphtheria. A recent contribution can be found in the report made by FURTH (*Münch. Med. Woch.*, 1896, No. 29) of 150 cases thus treated at the medical and surgical clinics of the University of Freiburg. This report is supplementary to a previous report of 100 cases treated in the same way. Of the 150 cases, diphtheria bacilli were found in 123. In the remaining 27 the diagnosis was confirmed by subsequent tracheotomy; of these, besides, 13 terminated fatally, and were examined post-mortem. Twelve cases in which diphtheria bacilli were not found, were treated with the antitoxin, but they are not included in these statistics. In 34 of the 123 cases streptococci also were found, but the examinations were made twenty hours after inoculation—at a time thus unfavorable to the development of streptococci. In the case of five children with laryngeal diphtheria, of whom three required tracheotomy and two died, diphtheria bacilli were cultivated from the pharynx, although this was free from membrane, swelling, or redness. One of these children had measles also, so that the diagnosis was a matter of considerable significance. Of the 150 cases, 122 were uncomplicated and 28 complicated. The complications included measles (16), scarlatina (5), measles and scarlatina (2), measles and typhoid fever (1), and tuberculosis (4). Among the 122 uncomplicated cases there were 12 deaths (9.8 per cent.); tracheotomy was required in 26 cases (21.3 per cent.), with 9 deaths (34.6 per cent.). Among the complicated cases there were 11 deaths (39 per cent.); tracheotomy was required in 9 cases (32 per cent.), with 6 deaths (66.6 per cent.). Of the whole number of 150 cases, death occurred in 23 (15.3 per cent.).

Notwithstanding the coincidence of epidemics of measles and scarlet fever, the mortality was lower than in any previous year. The proportion of cases requiring tracheotomy was also smaller, and the mortality among these lower. Over and above the complications the disease itself was in many instances of unusual severity. While in former periods the mortality in early life had varied from sixty to one hundred per cent., in the present collection of cases there were only three deaths among nineteen children under two years of age, although eight of these

cases required tracheotomy. The dose of the antitoxin employed was larger than previously. Of the fatal cases, two were septic, without involvement of the larynx; both of these came under observation on the fourth day of the disease, and death took place in sixteen and sixty-eight hours, respectively. In six cases death resulted from descending croup; all required tracheotomy. In two cases death was due to diffuse broncho-pneumonia, after the local process had terminated. Finally, in two of the cases death resulted from paralysis of the heart on the sixth and forty-first days of observation, respectively.—Editorial, *Medical News*, Nov. 28, 1896.

#### HYDROCEPHALIC IDIOCY.

The well known neurologist of New York, Dr. PETERSON, writes upon this topic in *New York Medical Journal* of July 25, 1896. He believes that the treatment of chronic hydrocephalus of the simple, primary kind is medical or surgical. Bourneville sums up the medical treatment which he has found successful in some instances as follows: 1. Compression (Barnard, Trousseau). 2. Revulsives (Gelis). 3. Internal administration of calomel (Gelis).

The head of the child is shaved, and a capeline bandage applied for a week. After a week's rest this is renewed, or, if any incident contraindicates this, daily friction with mercurial ointment is substituted. At the same time calomel is administered twice weekly, in  $1\frac{1}{2}$ -grain doses. Every month, for a year or more, a vesicatory is applied to the head for from fifteen to twenty hours, and, when it begins to dry, compression is again employed. In addition to this, exercise, massage of the limbs, salt baths, douches, tonics, etc., are used as required. Pedagogic treatment is important for this class of cases when cure or arrest of the disorder seems evident.

Thus far surgical procedure of any kind has not proved to be of particular value. Most patients have died as a result of operation. Possibly a more conservative method of operating may be devised in the future. Up to the present time the surgical procedures resorted to have been (1) craniectomy and drainage; (2) puncture of the lateral ventricles; (3) puncture of the fourth ventricle; (4) lumbar puncture.

Craniectomy with drainage may be excluded nowadays altogether from the category of expedients. The patient is almost

certain to die as a result of the sudden evacuation of a large amount of fluid.

Puncture of the lateral ventricles, even if carried out carefully according to Keen's method (*Medical News*, December 1, 1888) promises but little more, and had best be abandoned as a remedial measure in this class of cases.

Trephining of the occipital bone, three-fourths of an inch below the superior curved line, to the right of the middle line, with subsequent enlargement of the opening downward, and the insertion of a probe into the fourth ventricle, is an operation which was proposed by Parkin (*London Lancet*, 1893) and carried out in four cases, two of which recovered. On theoretical grounds this form of procedure seems to have much in its favor, and to deserve more extensive trial. A similar measure, successfully tried, is trephining in the region of the temple and insertion of the cannula in the subarachnoid space of the fissure of Sylvius.

Lumbar puncture—by which is meant the insertion of a drainage needle through an intervertebral space in the lumbar portion of the spinal column into the spinal cavity—has been rather extensively employed of late in a great variety of affections of the central nervous system, hydrocephalus being among them. Jacoby (*New York Medical Journal*, Dec. 28, 1895, and Jan. 4, 1896) has recently made a careful study of the subject of lumbar puncture in connection with a number of central nervous maladies. Quinke seems to have been the originator of the method (Tenth International Congress, 1891), though Wynter (*London Lancet*, 1891) proposed it about the same time. It seems to be a simple and harmless procedure, as well as a powerful means of reducing intracranial pressure. An ordinary aspirating needle (one millimeter in diameter, eight centimeters long) is aseptically employed. The space between the third and fourth lumbar vertebræ is selected, five millimeters to the right of the median line, though in children the puncture may be made directly in the median line. An anesthetic is rarely required. The needle should be pushed in from two to eight centimeters. The fluid begins to flow out in drops or in a small stream, according to the degree of intracranial pressure. The amount of fluid allowed to flow out must be gauged by the indications and conditions; Fürbringer withdrew in one case 110 cubic centimeters at one time. On removing the needle, the puncture is closed with a little

iodoform collodion and a compress with adhesive plaster. Fürbringer, Huebner and Ewald report temporary improvement in hydrocephalus after lumbar puncture, but the method is as yet too novel and has been too little used to allow of any definite conclusions as to its value in this class of cases. Several cases of recovery from hydrocephalus by means of this measure have been reported.

Operation does not preclude the employment of other means. Horizontal bandaging of the head with a wide rubber bandage after tapping, and the use of cod-liver oil and phosphorus, are certainly of considerable service and should not be neglected.

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*THE MEDICAL TREATMENT OF TIC DOULOUREUX IN CONNECTION WITH THE QUESTION OF OPERATION.*

In an article with this title in the *British Medical Journal* of November 21, 1896, EWART states that the medicines he has employed with some success in the present cases are not claimed to be specifics nor to be suitable to all. Greater importance belongs to the method, which is based on the assumption of a constitutional factor, and on the clinical contrast between tic and the ordinary neuralgia. A merely symptomatic and sedative treatment, such as may benefit ordinary neuralgia, is powerless and only too likely to perpetuate the ailment. While ordinary neuralgia, although seldom overcome by sedatives alone, is benefited by alcohol, by iron, by strong tonics, and by a generous diet, these are precisely the agents which often aggravate tic douloureux, as though in this neuralgia the nerve reacted to some irritant quality of the juices—such, for instance, as we may assume to exist in the gouty state—rather than to their deficiency in nutritive value. The constitutional element in treatment, namely, diet and hygiene, is for this reason an indispensable adjunct to medication. In the treatment of the cases narrated, special regard was directed to the indications for sedatives, restoratives, alteratives, and tonics respectively.

Sleep being the first essential, and the basis of the entire treatment, it is necessary that the narcotic prescribed should be sufficiently strong to procure prolonged slumber. Chloral and morphine combined will usually prove effectual.

The restorative measures include mental and bodily rest and suitable alimentation. Rest in bed is indicated in all severe cases

till remedies have taken effect; and the success of the treatment may largely depend upon this means of economizing nerve energy. Alimentation is the second essential, but needs to be adapted to the irritable state which prevails at this stage. The tenderness of the mouth, and its often unhealthy state, and the feeble and faulty digestion, call for careful selection and for a gradual progression in diet; and the question here arises as to the use of nitrogenous food and of alcohol. The object of the treatment is to raise the nutrition without overloading the blood with nitrogenous waste. Thus a modified vegetarianism, including a liberal supply of the vegetable foods and a moderate amount of the nitrogenous, is generally indicated. Vegetarianism itself deserves a full trial in the worst cases before resorting to operation, and is said to have been attended with most favorable results, though Dr. Gowers refers to the opposite experience in a case where the neuralgia began coincidentally with the adoption of the vegetarian plan. Vegetable food was liberally, but not exclusively, supplied in the cases reported by Ewart; in one case, however, the patient has been for the last two years a strict vegetarian, with the exception of eggs. Alcohol is to be avoided; sufferers are well aware that the relief it affords is purely temporary, and it is regarded by the writer as decidedly harmful in promoting a liability to the attacks. While this liability prevails it should be absolutely forbidden; subsequently total abstinence is the safer course, and should be the rule in the gouty cases. Nevertheless, in enfeebled and underfed subjects, stout, or even port wine, may be allowed as a temporary help to nutrition.

Dyspepsia due to gastro-hepatic catarrh may have to be dealt with as a preliminary; and in a mild case of this kind the neuralgia may rapidly subside under treatment directed to the stomach. The state of the teeth, and of the gums also, calls for every attention, though, as regards the teeth, more than is needful has often been done before the patient comes under treatment. It is a well known characteristic of the sufferers that they ruthlessly sacrifice their sound teeth as well as those decayed, in the vain expectation of relief. But the mucous membrane may be less at fault than the chemistry of digestion and of its products; and more searching remedies, which may be broadly termed alterative, will be needed.

The alterative treatment may, in genuinely gouty cases, be specially directed to the gout,

with careful avoidance, however, of any depressing agents. In the generality of cases a modified treatment, favoring absorption as well as glandular activity (particularly that of the liver), will meet the gouty as well as the general indication. The salicylates, the benzoates, sulphur, chloride of ammonium, and taraxacum, are available, but none of them probably equals in efficacy the salts of iodine and of mercury, and particularly their combination in the proportion of twenty to thirty minims of the solution of the perchloride of mercury to six to ten grains or more of the iodide of potassium. The iodide may be tried alone, and should then be given in sufficient doses; its action seems to be promoted by the addition of tincture of iodine in doses of fifteen to thirty minims. The full measure of relief, however, was not obtained in the two cases where the drugs were administered in installments, until mercury was added to the iodides. Where the iodides alone had failed, this combination brought about a cessation of the pain. As a useful adjunct, guaiacum, a drug so highly recommended in gouty affections, was employed; flavored with syrup of orange, it formed a mixture more unsightly than unpalatable, but in private practice it is better administered separately. No anodyne was in any of the cases administered conjointly, the night draught having become unnecessary after the first two or three nights.

Reduction of vascular tension is a well known property of the drugs in question; but it is difficult to apportion the share taken in the result by this influence, and by the favorable action on glandular and general metabolism and on absorption respectively. The action of nitroglycerin, which has also been prescribed with benefit, is less doubtful, and it is not, as is that of aconite, open to the objection that it produces undesirable depression.

The tonic measures, as already indicated, are less dependent on drugs—though the vegetable tonics may be used with advantage—than on hygiene, and, above all, on muscular exercise, which has the advantage of diverting energy from the oversensitive nervous mechanisms while raising the general nutrition. Muscular work should be at first passive, and only gradually increased. Ordinary massage may be applied at an early date after the needful long sleep has been obtained, and should be gradually replaced by the "resistance movements," and in suitable cases by Swedish gymnastics. Salt baths

may be combined with this treatment, which, by diverting the circulation to the skin and muscles, would tend to relieve the nervous system. Climatic treatment may also be resorted to.

The treatment which has been sketched is complicated in its details, but simple in its general principles. The action of drugs needs to be favored by every hygienic advantage, and, above all, by a removal from home influences, which act as exciting causes. Probably no health resorts can confer advantages comparable with those gained by the poor from a stay in the hospital, which fulfils almost all the hygienic indications.

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#### *THE TREATMENT OF ASCITES BY INJECTIONS OF OXYGEN INTO THE PERITONEUM.*

At a recent meeting of the Lyons Société Nationale de Médecine, M. TEISSIER related the case of a woman who came under his care for ascites with generalized edema. He treated her according to M. Potain's method of abdominal puncture followed by injections of oxygen into the peritoneum. At the first puncture about fourteen pints were withdrawn, but no amelioration occurred, as the liquid collected again in six days. A second puncture was then made and followed by the injection of 1300 cubic centimeters of oxygen. The operation was very well borne, and did not provoke any pain or local reaction; there was also complete absence of fever during the following days. The abdominal circumference diminished from 128 to 102 centimeters, and the edema of the lower limbs disappeared very rapidly. The oxygen was easily absorbed by the peritoneum. For some days there was some gurgling, but this disappeared at the end of eight or ten days. At the time of writing, the abdomen still measured 102 centimeters and sonorousness existed everywhere, even in the iliac fossa when the patient lay on her side. She was able to get up every day and walk in the open air. These results were obtained in three weeks.

The patient entered the hospital suffering from alcoholic cirrhosis, and after her entrance the liver increased in size and cardiac symptoms presented themselves. The diagnosis, said M. Teissier, might be open to discussion, but that was of secondary interest only; he presented the case because he had seen the grave symptoms disappear in three weeks under the influence of an injection of



1300 cubic centimeters of oxygen into the peritoneum.—*New York Medical Journal*, Aug. 1, 1896.

*A CASE OF MALARIAL HEMATURIA, WITH SUMMARY OF TREATMENT.*

In the *Alabama Medical and Surgical Age* for August, 1896, GUICE sums up his treatment of this serious condition as follows:

1. To control pain, restlessness, or other distressing symptoms, give hypodermically about a quarter of a grain of morphine, and repeat *pro re nata*, observing always that narcotism be not induced. Atropine is added to the morphine when indicated by the condition of the patient. The opiate is also vastly beneficial as a stimulant and regulator of the vaso-motor system.

2. Epsom salts should be given (particularly in the early stage) in full doses about every four hours until about six copious evacuations are obtained. Subsequently the bowels should be moved daily by the use of smaller doses of the salts. The active purgative effect produced by the magnesium sulphate is rationally one of the most important adjuncts to the treatment. The vigorous osmosis thus set up in the alimentary canal constitutes a valuable factor in relieving the congestion of the kidneys by lowering the vascular tension, and thus assists in controlling the hemorrhage. And the same osmotic action of the salts relieves the hepatic engorgement; in fact, all the organs supplied by the portal system are thus relieved or largely benefited. The purgation also tends to relieve the nausea and vomiting and otherwise to assist in placing the alimentary system in condition to retain and assimilate both food and medicine.

3. The turpentine is given early in the attack in the dose of ten drops every three or four hours, and continued till the urine is clear and the patient beyond the period of danger. It is an axiom with those best acquainted with malarial hematuria, that the oil of turpentine is by far the best remedy for the renal hemorrhage. And, aside from its hemostatic action, turpentine is a reliable diuretic, and thus renders additional service in preventing the suppression of urine. It is also a valuable vaso-motor stimulant, and thus fills another important indication, especially in the graver types of the disease.

4. The tincture of chloride of iron and solution of arsenic are given in combination, and operate to improve the condition of the

blood and tone up the failing vital forces. The arsenic also acts specifically to counteract and destroy the germ of malaria. Eight to ten drops of the iron and two to three of the arsenical preparation should be given every three to four hours, and continued until convalescence is fully established.

5. In malarial hematuria the patient cannot be considered free from disease or exempt from relapses even after he has reached the stage of advanced convalescence. In truth, he is then, in most cases, only restored to the condition of malarial cachexia, with such additional damage as may have resulted from the exacerbation which precipitated the hematuria. Unless the patient receive proper treatment at this stage, he will continue in a state of malarial cachexia or probably suffer a recurrent hematuria. In all cases, therefore, the patient should remain under the care of the medical attendant, avoid exposure and violent exercise, and have nourishing food and comfortable clothing; above all things he should continue, for not less than thirty days, such treatment as is best adapted to the cachetic condition. Guice has used with unfailling success, in such cases, a combination of iron, quinine, and arsenious acid. The formula given in the case reported is a good one. Should the patient be unable to take pills or capsules, the following combination will be found effective:

B Quininae sulphat., 3j;  
Tinct. ferri chlorid., f 3 v;  
Liq. acidi arseniosi, f 3 iss;  
Potass. chlorat., 3j;  
Syr. zingib., q. s. ad f 3 iv.

M. Sig.: Teaspoonful in water thrice daily, after meals.

The foregoing treatment will prove effective, for this stage, in almost all cases, if strictly carried out for a sufficient period. And it is only reasonable that time should be required to correct the structural lesions existing in the spleen, liver, kidneys, etc. The same is true of the profound anemia and other pathological changes in the blood which preceded and were intensified by the hematuric paroxysm. The treatment, then, should be pursued until the patient is restored to health, whether one month or twelve be required.

*ON THE TREATMENT OF BIRTH-MARKS.*

There is nothing desperate in the way of treatment that a person afflicted with a birth-mark of the face will not try, and therefore the article by ALGER in the *Medical News* of

August 22, 1896, is worthy of note by the general practitioner. As Alger says, *nævi* have been treated by caustics and acids, by the actual cautery, by pressure, by ligature, and by vaccination. The *nævus araneus* is very easily destroyed: a very hot needle or a needle dipped in carbolic acid may be plunged into the central capillary, thus destroying the whole mark in a very few seconds. But this procedure is objectionable where larger growths are concerned. They require great fortitude on the part of the patient, or the use of an anesthetic, and give considerable pain afterwards, while the destruction of tissue cannot very well be controlled. This is a very serious drawback, for we depend for our results upon the substitution of a scar for the mark, and the lighter and thinner the scar the better the cosmetic effect. For these reasons, the methods outlined above should never be employed about the uncovered parts of the body. The use of freshly prepared ethylate of sodium has been very highly recommended in vascular *nævi* that are not too large and deeply situated. It is rather painful, but after one or two applications a thin crust forms, which falls off in a few days, leaving a fairly thin scar. But unless the solution be freshly and carefully prepared, it is in effect an aqueous solution of caustic soda.

All things considered, the use of electrolysis is by far the most satisfactory means of treatment; but in order to secure good results it is necessary to have a good idea of the physical and chemical properties of the current. The appliances necessary consist of a galvanic battery of at least ten cells, or some means of regulating the street current, conducting cords, sponge electrodes, needle-holder, needles, etc. A milliampère meter is not necessary, but it is an assistance to good work. The cells should be connected zinc to carbon. The needle-holder is better without the spring for breaking the current which is generally provided. The needle may be varied in size according to the character of the work, from that of the very finest jeweler's needles to the broad flat surgical ones.

The sponge or punk electrode attached to the positive pole, thoroughly moistened with saline solution, can be continuously applied to the skin, the current being regulated through a rheostat; but the best way is to have the patient hold the sponge and complete the circuit by pressing it against some convenient part of his body. It is less pain-

ful to break the current at the positive pole, and the patient is able to partially regulate it by increasing or decreasing the pressure. The needle, attached to the negative pole, should be introduced at the margin of the growth, either perpendicular to the surface of the skin, or in a slanting direction, according to the size and depth of the *nævus*, and a current of from one to three milliampères used, according to the patient's fortitude. There is at once evolved at the negative pole, about the needle, hydrogen gas, which can be seen bubbling up, and a caustic alkali, which destroys a certain amount of tissue in proportion to the strength of the current and the depth to which the needle has penetrated. No arbitrary rule can, therefore, be laid down as to the time required, which is dictated entirely by experience. If the application is too protracted, too deep a scar results; if not sufficiently protracted, no appreciable effect is produced. The proximity of the insertions must be governed by the effect desired, which is to combine the white of the scar-tissue with the red of the *nævus* so as to produce a general effect as much like the rest of the skin as possible. The punctures should not be closer together than one-sixteenth of an inch. If the mark is large, work can be facilitated by using a group of needles.

In the large angiomaticous *nævi* it is much harder to get a perfect cosmetic effect, for the scarring is apt to be deeper and more irregular, and on the whole a different procedure is advisable. The negative pole should be attached to the sponge this time, and in place of the steel needle a coarser one, of either copper, zinc, or silver, attached to the other pole. This should be introduced deeply into the mass, and a current of from three to five milliampères used, as positive electrolysis is less painful than negative. About the needles oxygen can be seen bubbling up; chlorine and an acid are also present and acting destructively upon the tissues. This reducing effect, however, is less active at the positive than at the negative pole.

The peculiar value of this method is, however, that, in addition to the local destruction of tissue, the needle is rapidly oxidized and decomposed, and there is deposited an oxychloride of copper or zinc, which is carried by the cataphoretic property of the current and diffused, coagulating the blood in the vessels. The needle is roughened after a short contact, just as a nail is rusted, and sticks closely to the puncture, but comes away easily enough after reversal of the poles of

the battery for a few seconds. In the great majority of cases of angiomaticous nævi it is safe to make definite promise of a good result. The pigmented moles are best treated by negative electrolysis, and as the pigment is not deposited very deeply beneath the surface, the needle need not be introduced so deeply, better results being obtained by passing it just beneath the surface from one side of the mole to the other, repeating the process according to the size of the mark.

In all these cases there will follow for several hours some signs of cutaneous inflammation, which can best be treated by means of hot water. No great change in the appearance of the growth need be looked for at the time, but in the course of a few days a crust will form and come away, leaving in its place a slight scar, which constantly tends to become thinner and fainter. When the pigmented moles have hairs in them, a fine needle attached to the negative pole and introduced into the hair-follicle will cause the hair to come out with very slight traction. This is generally much more painful, for, while the moles themselves are not at all sensitive, the hair-follicles are, and a correspondingly weak current must be used.

#### A NEW TREATMENT OF CHOLERA.

It is stated in *La Médecine Moderne* of September 5, 1896, that CHAUVIN, of Liege, has employed with advantage the following treatment of cholera, particularly for the relief of the cramps and vomiting:

- ℞ Dilute hydrochloric acid, 15 minims;
- Pure pepsin essence, 20 minims;
- Wine of opium, 20 minims;
- Peppermint-water, 4 ounces;
- Syrup of orange flower, 1 ounce.

A teaspoonful each hour.

This dose can, however, be diminished as soon as the medicine controls the attack to some extent, so that four teaspoonfuls a day may be sufficient. Sometimes fifteen minims of ether may be added to this mixture with advantage. It is needless to say that the dose varies with the age of the patient. The advantage of this mixture is that the hydrochloric acid and pepsin produce an artificial but normal gastric juice which has a useful antiseptic and other influence upon the abnormal alimentary canal. It also facilitates the use of the opium, calms digestion, controls peristaltic movement, and diminishes the exudation of liquid into the intestine and the multiplication of micro-organisms.

#### THE USE OF GALLIC ACID IN THE TREATMENT OF TUBERCULAR HEMOPTYSIS.

In the *Journal des Praticiens* of September 12, 1896, DEGUY, after quoting the paper of Capitan, already published in the THERAPEUTIC GAZETTE, asserts his belief in the use of full doses of gallic acid in this condition. The doses he employs vary from four to fifteen grains, and may be given in powder, pills, or solution. A very useful mixture is ten grains of gallic acid in four ounces of infusion of orange; this quantity may be taken each day. In other instances, if the hemoptysis is very abundant, gallic acid may be advantageously associated with ergotin as follows:

- ℞ Gallic acid, 30 grains;
- Ergotin, 15 grains.

Make into twenty pills. Take five or more each day.

In other instances a prescription made up as follows is of advantage:

- ℞ Gallic acid, 2 grains;
- Ergotin,
- Powdered ipecac, of each, 1 grain;
- Powdered digitalis,  $\frac{1}{4}$  grain.

To be made into one pill.

Five or six of these pills may be used each day if necessary. In still other instances if cough is excessive the following may be used:

- ℞ Gallic acid, 2 grains;
- Sulphate of quinine,
- Ergotin, of each, 1 grain;
- Extract of opium,  $\frac{1}{4}$  grain.

Make into one pill.

Five such pills can be given each day.

#### THE USE OF TELLURATE OF SODIUM IN THE TREATMENT OF NIGHT SWEATS.

JOGET recommends in a thesis, which is quoted in *La Médecine Moderne*, August 26, 1896, the use of the tellurate of sodium in the treatment of the night sweats of phthisis; his observations having been made in the service of Barre.

Some of the readers of THE GAZETTE may remember that this drug was recommended seven or eight years ago, about the time camphoric acid was recommended for the same purpose. The effect which it produces, in the belief of Joget, is distinctly antisudorific. The initial dose is one-third of a grain a day in ordinary cases. If the tuberculosis is much advanced and the sweats are severe and general, it is necessary to increase the dose to one grain, but larger doses than this are apt to produce digestive trouble. For

persistent effect it is necessary to administer the drug for three consecutive days. Pills are the best form, but alcoholic or aqueous solutions are readily made. Thus a prescription may be written for:

Tellurate of sodium, 2 to 3 grains;  
90-per-cent. alcohol, 2 ounces.

A small teaspoonful night and morning in a little sugar and water.

It is claimed that this treatment will prove successful in sixteen out of twenty cases of tubercular night sweats. Its persistent use gives an odor of garlic to the breath.

#### THE SERUM TREATMENT OF SYPHILIS.

In the *Fortschritte der Medicin* of September 1 there is an abstract, by Dr. Dreyse of Leipsic, of an article of Tommasoli's, chiefly polemical, published in the *Giornale Italiano delle Malattie Veneree e Della Pelle*, called forth by the recent publications of Maragliano, Neumann, Mauriac, and Pellizzari, on the subject of the serum treatment of syphilis. He accounts for the fact that the treatment has accomplished less in syphilis than in other diseases, by the general lack of knowledge concerning the syphilitic virus, and the fact that all the lower animals are proof against the disease. As to the nature of the immunity of animals to syphilis, he believes this is due to materials that circulate in the blood, and is therefore hematogenous, while Pellizzari is of the opinion that the cause is closely connected with the tissues, since any congenital immunity must be of that sort, whereas acquired immunity must be set down as hematogenous. Tommasoli contends that, in the case of man at least, immunity, although acquired, may owe its cause to the tissues.

According to Pellizzari, the *conditio sine qua non* of immunizing experiments is that some material should be inoculated which, although but slightly virulent, is capable of exciting the production of immunizing substances in the tissues. "Is then," Tommasoli asks, "this condition fulfilled in Pellizzari's experiments, since he uses blood from human subjects whose syphilis is of eight, eleven, and thirteen years' duration?" A further objection made by Tommasoli against Pellizzari's experiments is that the most various kinds of serum were used on the same patients. He concedes, however, that possibly an amelioration of the course of the disease was the result.

Tommasoli next takes Mauriac to task for inaccuracies in his historical account of the

serum treatment of syphilis, and claims priority for himself; if he was not the first to give serum injections in syphilis, he says, he was certainly the first to reduce the treatment to a practicable method. He then combats Maragliano's contention that the immunizing agent in the lower animals is some substance peculiar to themselves, one of which little can be expected when it is transferred to man; also Pellizzari's doctrine that there is no hope of finding specific antitoxins in the blood of persons affected with tertiary syphilis. It may be, he says, that what we now call syphilis is really twofold—that we must distinguish between the contagious disease and the non-contagious diathesis, between syphilis and "syphilism" (sifilismo).

His most recent experiments are divided into three series. In the first method, which he calls hydrotherapy, he used the ascitic fluid of a person affected with syphilitic disease of the liver. This he employed upon seven patients in the secondary stage, most of whom had had no previous specific treatment. The smallest number of injections given in any one case was eight, and the largest thirty-seven, in periods ranging from ten to fifty-seven days, and the total amount injected varied from 68 to 350 cubic centimeters. The largest single dose was eighteen cubic centimeters. The fluid was obtained with all antiseptic precautions, and used either fresh or after being kept in sterilized vessels with the addition of a few drops of chloroform; it was injected into the buttocks, and no serious mishaps occurred in any case. In most of the patients, soon after the injection, there followed indisposition, headache, giddiness, etc., but these disturbances always subsided speedily; in some there was a slight elevation of temperature; in several the temperature rose and the weight increased during the treatment. No albumen was ever found in the urine. As to the effect on the disease, all that can be said with certainty is that new symptoms made their appearance during the course of injections.

In the second method, or galactotherapy, he used the milk of two women who had secondary syphilis, latent in one of them. After proper cleansing of the nipples, the milk was pressed out and injected immediately into the muscles of the buttock. Of seven patients treated by this method, one had gummatous syphilis, but all the others were in the secondary stage. The number of injections varied from three to thirteen, and the total

amount injected into any one patient ranged from 30 to 100 cubic centimeters. Ten of the patients in the secondary stage were decidedly improved; the others showed no change. This method was based on the observation that in other infectious diseases, such as tetanus and diphtheria, the antitoxins pass into the milk.

In the third method, termed myelotherapy, he employed large quantities of the spinal cord of the ox. He had previously seen syphilitics relieved of malaise and osteocopic pains, by eating freely of ox-marrow, without specific treatment. In all, nine patients were treated in this way. Six of them had severe headache and pains in the bones and joints; two of the six had before been treated with the ascitic fluid; four others had had no treatment. The three remaining patients showed fresh lesions of the skin and mucous membranes. The fresh spinal cord of the ox was given either in the form of balls having powdered liquorice incorporated in them, or in that of an emulsion with milk. The smallest amount given in twenty-four hours was 300 grains; the largest 1500 grains. Of the three patients with cutaneous manifestations, none showed any improvement, although the treatment was continued for fifteen, twenty-seven, and thirty days, respectively. Of the six others, only three were kept under observation for any considerable length of time; at the end of ten days they were all relieved of severe sufferings and felt perfectly well.

The third method, then, so far as these observations go, seems the most promising, but the propriety of classing it as a form of serum treatment may be questioned.—*New York Medical Journal*, Sept. 26, 1896.

#### THE SUBLIMATION OF CALOMEL IN THE TREATMENT OF MUCOUS PATCHES.

*La Médecine Moderne* of August 29, 1896, describes the results obtained by BALZER and by MARMONNIER. Calomel is sublimed by means of any one of the ordinary calomel sublimators used in medicine, and is then collected by means of an inverted funnel, and carried to the mouth of the patient through a rubber tube of small size. Half a grain to one grain of calomel is sublimated, and the vapor is allowed to pass into the mouth for a very short period of time. It is best to direct the vapor from the tube upon each individual patch for three or four seconds, and if the patient holds his breath for

that time comparatively little of the drug passes into his lungs. In the treatment of mucous patches about the genitals or the anus a similar method of direct application of the sublimed calomel may be resorted to. It is believed that this method of treatment is more efficacious than the application of nitrate of silver; the mercury is brought in direct contact with the syphilitic tissue, and it is not painful, as are nitrate-of-silver applications.

#### THE VALUE OF HOT SALINE IRRIGATION OF THE INTESTINE IN CASE OF UREMIA.

In the *American Medico-Surgical Bulletin* of September 26, 1896, GRANDIN states that he has seen cases where, after delivery of the fetus or after an abdominal operation, the kidneys refused to functionate, and where, with absolute certainty, uremic symptoms would supervene unless the excretory organs could be persuaded to do their duty anew. Acute suppression of urine to a greater or less degree, headache, spots before the eyes, clouding of the intellect, twitching—symptoms always of such bad omen—such is the clinical picture he has in mind, and for which he recommends, above the administration of drugs, continuous irrigation of the bowel with hot normal saline solution. While the catharsis which is indicated is awaited, while the problematical effect of one or another drug is hoped for, the intestine may be irrigated, with the result of most profuse diaphoresis and, in the relief of the congestion of the kidneys, the betterment of all the alarming symptoms. In the cases under consideration, what we aim to secure is free catharsis and diaphoresis, with consequent abstraction from the circulation of the toxic elements which are at the bottom of the alarming symptomatology. The physician is dealing with a complication which must either be relieved speedily or, as a rule, eclampsia, coma, and death ensue.

To irrigate the bowel properly he proceeds as follows: The woman is placed in the left lateral position, with buttocks elevated and head lowered. A large rectal tube is inserted into the bowel as far as may be, usually up to the sigmoid flexure. The rectal tube is connected with a gravity syringe, which is hung at least six feet above the patient's head. In case such a syringe be not at hand, the physician will find a funnel in every household, and this may be connected with the rectal tube by means of rubber tubing.

Hot salt water is used for irrigation. The strength of the solution should be about one per cent., and the temperature of the water in the receiver about 188° F. An attendant should hold the rectal tube at the anal margin to prevent its being expelled as, under the provoked peristalsis, the water is driven out of the bowel. From eight to ten gallons of water should be allowed to flow in. This accomplished, the woman should be wrapped in blankets and made comfortable in her bed. Meantime croton oil may be placed on the tongue, and glonoin may be administered in full doses hypodermically in the event of the character of the pulse demanding it. It may be stated here that, as a rule, in the condition under consideration, glonoin is called for, but the dosage must be large—that is to say, fully one-twenty-fifth of a grain, repeated half-hourly until the physiological effect has been secured. This drug offers us the readiest of all means for relaxing the spasm of the renal capillaries.

Very soon after the irrigation, profuse diaphoresis sets in, followed by abatement in the alarming symptoms, and shortly thereafter the kidneys may begin to excrete again.

The explanation of the effect of hot saline rectal irrigation is not far to seek. The nerve-centres are stimulated; the kidneys are directly stimulated; the skin is called into action; peristalsis of the intestinal tract is evoked. In short, every indication is promptly met.

#### THE TREATMENT OF HEMOPTYSIS.

In *La Médecine Moderne* of August 26, 1896, CAPITAN concludes an article upon this interesting subject. He divides the remedies which have been employed in the treatment of pulmonary hemorrhage into several classes, as follows: first, vaso-motor medicaments, or regulators of the circulation; second, those which act directly on the centres or nervous ganglia, as ergotin, hydrastis, hamamelis, digitalis, morphine, and atropine; third, those which act reflexly upon the nervous centres, emetics such as ipecac, tartar emetic, and full doses of Dover's powder, revulsives, purgatives, ice, hot water, and compression by ligature of the extremities. The drugs which act locally on the walls and on the contents of the blood-vessels are ergotin and the vegetable astringents, such as tannin, gallic acid, turpentine, or the mineral astringents such as alum, acetate of lead, iron, antipyrin, and sea salt. The general medicaments which can be

employed are the tonic stimulants such as alcohol, ether subcutaneously, camphor, sparteine, and quinine, and the sedatives, opium, morphine, and the bromides.

Capitan believes that ergot is an extremely useful remedy under these circumstances, but he also recognizes that there are certain contraindications to its use, as increased arterial excitement or hemorrhage from the venous trunks. On the other hand, in hemorrhage from an arterial blood-vessel which contains a large number of muscular fibres, ergotin is very useful, but in hemorrhage from the pulmonary blood-vessels its employment must be accompanied by caution because it augments the venous tension. Very much larger doses of ergotin than are used for ordinary purposes should be employed in such cases—five or ten grains—but care must be exercised not to give large enough doses to disorder the stomach.

The evidence concerning the value of hydrastis is somewhat contradictory: it is stated that in small doses it acts as a vaso-motor constrictor and augments the blood-pressure; it has, however, been employed with marked success by Huchard in tubercular hamatemesis. He gives twenty drops at a dose, repeated in the course of the day until the patient receives eighty drops. Should hydrastin be used, it may be given hypodermically in the dose of thirty minims of a ten-per-cent. solution.

He does not regard hamamelis as of great value in hemoptysis, but if it is used the fluid extract may be given in the dose of from fifty to eighty drops a day. Digitalis is necessary where there is in association with the hemoptysis marked evidence of cardiac failure; ordinarily, however, it is best not to employ it. Morphine is valuable because it quiets the heart and allays activity of the cerebral centres, so reducing blood-pressure; it is a very useful drug to associate with ergotin, and may be given in the dose of one-eighth to one-fourth of a grain hypodermically. Similarly, Capitan thinks, as did Brown-Séquard, it is often useful to combine with the ergotin and opium some atropine. In those cases where there is marked excitation of the arterial system, full doses of ipecac, sufficient to produce slight nausea, or tartar emetic, do good by reducing blood-pressure. In the way of revulsives and derivatives, active rubbing, or vesication, or the application of hot cloths or hot-water bags to the perineum, or ice in a small ice-bag to the chest, may be employed. If the hemorrhage

is sufficiently profuse to produce fainting, tight bandaging of the extremities is advisable. It is also claimed by some persons that where there is a slow persistent hemorrhage from the lung the use of an active purgative is useful, in that it draws the blood away from the affected part. Above all, it is necessary that the patient should be kept quiet. Whether much good is obtained from the administration of such vegetable astringents as tannin and gallic acid, is doubtful. Turpentine, however, in the dose of five to ten drops, sometimes seems of value.

Capitan believes that antipyrin is an exceedingly valuable remedy in hematemesis. Alcohol and ether, camphor and sparteine, along with quinine, are the drugs which are to be employed to overcome the intense weakness of the patient. Sometimes counter-irritation in the form of a sinapism or mustard plaster applied over the area in which the hemorrhage is supposed to originate is of advantage. The following prescription may be used for hypodermic injection:

- ℞ Ergotin, 75 grains;  
Hydrochlorate of morphine, 1 grain;  
Antipyrin, 20 grains;  
Sulphate of sparteine, 3 grains;  
Sulphate of atropine, 1-30 grain;  
Distilled water, enough to make 3 drachms.

Of this, twenty minims may be given hypodermically, deeply injected into one of the muscles of the back or chest, and if necessary the injection may be repeated in half an hour should the danger be pressing. It is also advisable to administer part of the following prescription by the mouth every half-hour with a teaspoonful of broth:

- ℞ Ergotin, 30 grains;  
Gallic acid, 7 grains;  
Turpentine, 5 minims;  
Syrup, 4 ounces.
- Dose, a dessertspoonful to a tablespoonful.

#### CHLORATE-OF-POTASSIUM POISONING.

ISAACS contributes to the *American Medico-Surgical Bulletin* of August 22, 1896, a well prepared and largely bibliographical article on this topic. He tells us that the first symptoms of poisoning are thirst, and discomfort about the stomach, followed by pains in the epigastric and hypogastric regions and the loins. The heart action is at first increased, with full and bounding pulse, soon to be followed by weak heart-beat, with pulse small and thready or almost imperceptible. Vomiting, generally very severe and persistent, is among the first symptoms and almost invari-

ably present, but may be absent when small portions of the dose are taken at intervals and slowly enough to allow of absorption as fast as taken. Diarrhea is a constant symptom, one of the first to appear and last to disappear. The stools are fluid and black or dark-green, or, as in the writer's case, black flocculi in a bright yellow fluid. Tenesmus frequently accompanies the diarrhea.

On the kidneys the first effect is an increased secretion of urine, with irritation of the bladder, which, if the dose has been large enough, is soon followed by dysuria and suppression, which may become complete. The little urine passed is almost black, deposits a sediment containing granular and hyaline casts and blood-corpuscles, and generally also contains a large amount of albumen. There may be, even in a fatal case, no noticeable suppression or discoloration of the urine, as in the cases of Drs. Sherer and Boude, both of which were fatal, and in the writer's own case, in which all the other symptoms were as severe as they could be and yet recovery follow. In the first two no examination for albumen is noted, but in the writer's there was no albumen in the urine. As to chlorate of potassium in the urine, Isambert's experiments go to prove that it is largely eliminated in this way, that it appears in fifteen minutes after ingestion of the drug, and continues for from fifteen to forty-eight hours. In none of the cases cited is any test for this mentioned, but in the author's own case, although the potassium was sought for, none was found—the quantity of urine obtained, however, was too small for proper examination.

Cyanosis is an almost constant symptom, and may be of the whole surface or of the extremities, and especially of the ears, nose, lips, fingers, and toes. It is usually accompanied by dyspnea, more or less by coldness of the extremities, and sometimes by rigors. In cases where this condition is marked, the hue of the surface is not always that of ordinary cyanosis, and is variously described as "blue as indigo," "bluish-ashen," "bluish-white-dusky," "resembling anemic skin discolored with nitrate of silver," and in the author's own case it was so decidedly dusky as to approach chocolate-color. He accounts for this by the simultaneous existence of jaundice, which at the time was to be recognized on the white of the eyes only, but with the subsidence of the cyanosis it became evident over the whole surface. The marked anemia caused by the destructive action of the

poison on the blood also contributes to modify the appearance of the cyanosis. Jaundice is often present, and, as above noted, when cyanosis is marked, it is visible only on the conjunctiva.

On the blood the salt evidently has a very destructive action, but what this action is does not seem to be understood. Different writers claim disintegration of the red blood-corpuscles, reduction of hemoglobin to methemoglobin, and change in the color of the blood to a chocolate hue. Of the cases cited in this article, in three, all of which resulted fatally, the results of microscopic examination of the blood are given: in only one was any change in the corpuscles noted, showing "altered blood-disks in masses as well as unaltered blood-corpuscles;" the other two showed no change in the red blood-cells, but in one there was an increase in the proportion of leucocytes. One of the cases (Dr. Willie's) showed chocolate color of the blood, but it is not stated whether this was ascertained from the blood itself or from the color of the surface, which might have been similar to that in the writer's case.

On the nervous system the effect of the poison varies from the production of headache and prostration to stupor, coma, or convulsions. Stupor followed by coma, either partial or complete, is generally present in severe cases. Remission with apparent improvement may take place, only to be followed by relapse of all the symptoms. Depression may alternate with mental excitement. Paralysis of the muscles of vocalization and deglutition was noted in one case, which eventually recovered.

#### AN OPERATION FOR VALVULAR STRICTURE OF THE URETER.

FENGER (*American Journal of Medical Sciences*, December, 1896) reports a case of valvular stricture of the ureter operated upon successfully. In cases of hydronephrosis or pyelitis with distention (pyonephrosis) it is not uncommon to find comparatively narrow or thin-walled semilunar valves located transversely in the ureter. These open upward, have the same mechanical action as the valves in veins, and stop the passage of liquid through the ureter on its way from the kidney to the bladder. They are sometimes single and sometimes multiple, two or three in the same ureter. They have been depicted in Rayer's atlas, and are not uncommonly mentioned in the descriptions of specimens in the litera-

ture. They cause a gradually increasing impediment to the flow of urine, and effect dilatation of the ureter above and usually near to the valve, so that a ureter with multiple valves will present as many dilatations and constrictions as there are valves. It is natural that if small stones form in the kidney they should be arrested at the valves.

The patient, Mrs. G., aged thirty-two, in 1880, at the age of seventeen years, after jumping from a wagon to the ground, at once experienced pain in the right side immediately under the ribs, so severe that she fainted; probably the kidney was dislocated. Remittent attacks of pain followed, reawakened after her first pregnancy, in 1885, to disappear for eight years, returning in 1893, subsequent to miscarriage, to become intermittent or almost constant. Pyonephrosis, with tumor of right kidney, was diagnosed. Pelviotomy was performed August 6, 1895, as follows:

The patient was anesthetized with ether and placed on the left side on a cushion. An incision was made between the twelfth rib and the rim of the pelvis forward for about nine inches from the border of the erector spinæ muscle. The kidney was large, with but little perirenal fat, and was freely movable. Two small cysts presented on its convex surface about the size of a pea, which contained clear fluid. A part of the kidney-tissue which included these cysts was removed for examination. After isolation of the pelvis, which was somewhat dilated, but in which no stones could be felt, Fenger laid bare the ureter and felt a nodular mass two inches below the pelvis. He then incised the pelvis longitudinally, and about an ounce of urine escaped, from which cultures were subsequently made. The little finger was then inserted into the dilated ureter for an inch without discovering a stone, but upon manipulation with the other hand four stones were squeezed up into the pelvis and removed. A sound passed down from the pelvis into the ureter was arrested two and half inches below the pelvis, at a point where a somewhat soft thickening was felt on palpation. A longitudinal incision was now made, three-eighths of an inch long, into the ureter, upon the end of the sound above, through and below a transverse valvular stricture. A probe inserted through the opening in the ureter below the stricture passed easily down into the bladder. By holding the longitudinal wound open and stretching this part of the ureter over the index finger the operator was enabled to clip off the valvular stricture



from within the ureter with scissors, leaving the muscular and internal coats of the ureter intact. A plastic operation was performed on the ureter, and a No. 12 flexible bougie inserted from the wound in the pelvis into the ureter. The wound in the pelvis was left open. Upon digital exploration through this wound, the calices were found moderately dilated, one of them containing a small stone, which was removed. No other stones were found after careful examination. On this account it was not considered necessary to incise the kidney on its convex surface. Rubber drainage-tubes were then inserted, one down to the wound in the ureter, and another to the pelvis of the kidney; these tubes were surrounded with gauze. The external wound was closed with heavy silk sutures.

The operation lasted two hours. At the close the patient was in good condition, pulse strong, respiration good. She vomited twice after the operation. In the evening she was catheterized and two ounces of dark-brown urine withdrawn. She complained of severe pain in the wound. During the night she passed four ounces of urine, but toward morning the pain decreased, and she finally recovered entirely.

It will be seen that the operation for infected cysto-nephrosis in this case was not nephrotomy, as the convex surface of the kidney was not divided at all. Pelviotomy was performed, partly for the removal of the stones squeezed up out of the ureter, and partly for the exploration of the ureter and calices.

Exploration of the ureter with the sound led to the detection of the stricture, a valve, which was excised through a longitudinal opening in the ureter at its seat. Fenger considers this operation preferable to excision of the entire wall of the ureter and invagination after Van Hook's method, as it gives the least possible shortening of the canal. This may be of importance if more valvular strictures have to be operated upon.

Exploration of the calices can be made through an incision in a somewhat dilated pelvis when the latter is wide enough to permit of exploration with the finger and sound. For additional security against leaving stones in hidden calices with narrow entrances, it would be well to explore through the convex surface of the kidney with steel needles. When this is done in addition to digital exploration through the pelviotomy wound, there is as little risk of overlooking stones as if the convex surface of the kidney were

divided; moreover, hemorrhage is avoided, the operation on the renal pelvis being entirely bloodless.

For the local treatment of pyelitis, drainage through the wound in the pelvis will be sufficient, at least in ordinary cases of stones and valves in which, by removal of the cause, we may reasonably expect the pyelitis to come to an end.

#### *TREATMENT OF BACKWARD DISPLACEMENTS OF THE UTERUS.*

H. A. KELLY (*American Journal of the Medical Sciences*, December, 1896), in a paper on the above subject, reaches the following conclusions:

The various operative methods cited for treating retroflexions resolve themselves into two classes: the direct, which attack the body of the uterus; and the indirect, which deal with the uterus mediately by the round, the broad, or the utero-sacral ligaments. Of the indirect methods, the two which promise the best results are: that of Pryor, acting through the vagina on the cervical end of the uterus in order to produce enough scar-tissue about the utero-sacral ligaments to hold the cervix well back in the pelvis; and that of Pagenstecher, which endeavors to accomplish the same thing by suturing and shortening the round ligaments. The other indirect method is that of Alexander, acting upon the opposite pole of the uterus by means of the round ligaments; the best elaborated technique of this procedure is that of Dr. Edebohls, of New York.

The direct methods are two: vaginal fixation, and abdominal fixation or suspension. The vaginal operation has been practically abandoned, and the only abdominal operation which has thus far stood the test of prolonged trial in a number of cases is Kelly's. His method is as follows:

The case is carefully selected, avoiding patients who are simply hysterical and whose complaints are of a general nature in no way dependent upon the local lesion; also those whose symptoms are not pronounced, but who apply for treatment simply because they imagine they cannot have good health as long as retroflexion exists.

If the case is one calling for operation in a woman who has borne children, the vaginal outlet should first of all be seen to, and restored if it is broken down.

The operation of uterine replacement is performed in the following manner:

The instruments needed are a needle-holder, curved needles, scalpel, silk suture, two pairs of artery-forceps, silver wire and catgut, and an elevator.

After due preparation of the patient, the bowels and bladder having been freely evacuated, she is placed upon the operating-table with hips elevated. It is best to leave her in this position one or two minutes before opening the abdomen, in order to allow the intestines to gravitate toward the diaphragm. An incision three to four centimeters long is then made just above the symphysis pubis in cases in which the abdominal walls are thin or of medium thickness; a longer incision may be necessary in stout women. The length of the incision is less than in any other abdominal operation except for evacuation of ascitic fluid, and owing to its low position the scar is in time completely hidden, in the course of a year or two becoming scarcely visible.

The peritoneum is opened the full length of the skin incision, caught at once on both sides with forceps, and drawn outward. One or two fingers are now introduced through the incision, and the fundus of the uterus caught and raised into ante flexion.

Kelly invariably uses, as suture material for suspending the uterus, a medium-sized silk, about a half-millimeter in diameter; catgut is absorbed too quickly to insure permanent adhesion, and he has had no experience with silkworm-gut or silver wire, silk being so much easier to handle and having given such perfect satisfaction.

The suture is passed in the following manner: One side of the incision is lifted up by two fingers so as to expose a portion of the anterior abdominal wall on its peritoneal surface. The movable peritoneum and sub-peritoneal tissues are then transfixed with a curved needle at a point one or two centimeters away from the lower angle of the incision; the amount of tissue taken is about one centimeter in width and two or three millimeters in depth. The same suture is then passed through the posterior face of the uterus, one or two centimeters back of the fundus, and finally brought out through the peritoneum and sub-peritoneal tissue on the opposite side of the abdominal wall at a point corresponding to that of entrance. When this suture is tied, it at once brings the uterus up snugly against the anterior abdominal wall in ante flexion.

One more suspensory suture, is all that is needed to hold the uterus permanently in

ante position. This is passed like the first, but about a centimeter higher up on the abdominal wall and a half-centimeter lower on the posterior surface of the uterus.

The second suture having been tied, the abdominal wound is closed by sewing up the peritoneum with one or two silver wire mattress-sutures, and finally closing the superficial fat and skin with continuous catgut sutures. Before the peritoneum is completely closed the patient should be dropped to a horizontal position to let the air out from the peritoneal cavity.

Sometimes, when the uterus is brought forward out of retro flexion, the fundus lies so deep in the pelvis, and is so completely covered by coils of intestine, that it is exceedingly difficult to get at it to pass the first suture; in the average case the symphysis pubis forms a satisfactory point of counter-pressure to support the fundus pressed against it by two fingers while the first suture is being passed; but in the class of cases referred to, when this simple maneuver does not avail, the fundus may still be brought within easy reach by using an elevator, forming an artificial point of counter-pressure during the introduction of the suture.

Upon closing the incision a simple dressing of dry sterilized gauze is applied, and the patient is kept in bed for three weeks. After getting up she ought to take only gentle exercise for some weeks longer, and for at least six months avoid lifting and heavy work. The bowels should be kept emptied at regular intervals, and, above all, the bladder should be emptied not less than once in three or four hours, according to the amount of excretion; it is possible for an overdistended bladder to tear a suspended uterus away from its moorings.

Between October 1889 and October 1896, Kelly has operated upon two hundred cases of retro-displacements in the Johns Hopkins Hospital and upon nineteen in his private hospital, besides other cases operated upon outside. In no case has there been a death in any way connected with the operation, either during the convalescence or at a remoter period, and he knows of no case in which there has been a hernia or any serious interference with any function of the bladder. In tracing the subsequent histories he has learned of pregnancy in fourteen cases, in but one of which was there any difficulty attributed to the operation; that was one of the earliest cases, operated upon in 1889, in which a protracted suppuration in the wound

brought about such dense adhesions between the fundus and the abdominal wall that the patient, at the termination of her labor some years later, was only delivered by the forceps. Kelly has seen but four failures after this operation.

The operation just described relieves the retroflexion by holding the uterus in a position of great mechanical advantage to meet the forces which tend to displace it. The intra-abdominal pressure now falls upon its posterior surface and, instead of tending to produce a retroflexion, actually increases the antelexion. While the immediate effect of the operation is to fix the uterus to the anterior abdominal wall (ventro-fixation, hysteropexy), this is not the final result obtained, which is a suspension of the uterus by its posterior surface, allowing it the full freedom of all its normal movements. If, for example, the patient is examined two or three months after the operation, the body of the uterus will be found lying in easy antelexion in contact with the anterior abdominal wall; the examiner will also find that he is able to raise it without resistance, and to push it backward or sidewise. One position, however, it will not take; he cannot throw it again into retroflexion. The explanation of this freedom of motion is found in the connection of the uterus with the anterior abdominal wall by one or two bands of adhesion.

Almost all writers upon the subject of the operative treatment of retroflexions have been in the habit of discriminating between various classes of cases; for example, a distinction is made between those past the childbearing period and those still within it; and operations such as vagino-fixation, which experience has shown ought not to be performed during the childbearing period on account of the danger to patient and child in case of pregnancy, may very properly be performed in a woman who is not likely to become pregnant.

A distinction generally recognized is that between adherent and mobile retroflexions. Some operators, while unwilling to open the peritoneum in the case of a non-adherent movable uterus, feel that sufficient justification for celiotomy exists when there are posterior adhesions or disease of one or both adnexa. Although this distinction was emphasized at the recent Gynecological Congress at Geneva, the author has not dwelt upon it here, as he has shown by his own statistics that the danger to life from a properly per-

formed suspensory operation is no greater than in any of the so-called simpler operations. In addition to this, the peritoneal incision affords an opportunity for inspecting the appendages and discovering diseases often unsuspected, such as hydrosalpinx and adhesions of less grade; in one of Kelly's cases a commencing papilloma of the right ovary, not larger than a split pea, was found.

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#### THE CAUSES OF DEATH AFTER LAPAROTOMY.

FRITSCH (*Medical Press and Circular*, Oct. 28, 1896) calls attention to the fact that the body is not often free from germs, and that different tissues behave differently under invasion of bacteria; that, in general, various people have various affinities as regards various cocci. Cocci are rapidly swept into the peritoneum and into the blood, and destroyed. But in order that they may be harmless, there must not be too many of them; the heart of the host must be healthy and his circulation undisturbed—conditions that are opposed by prolonged operation under chloroform narcosis, loss of blood, and cooling; and the functions of the tissues must be normal. Cooling is of less moment than contact with air, and the altered pressure after opening the abdomen. The injury thus caused is often visible to the eye. It is still greater when the peritoneum is roughly and improperly treated. Even without direct infection the operation is dangerous. It must not be forgotten that cocci accidentally introduced or coming through from the intestines may find conditions suitable for their growth. Generally the weakened intestines recover their tone. If, therefore, after twenty-four hours the heart is strong and the pulse good, there is no danger; but if, with a weak heart and a quick pulse, the normal function of the bowel is not restored, there is. The two conditions which strongly predispose to infection are: injury to the heart, and interference with the peritoneum or intestinal functions. Patients on whom laparotomy has been performed do not die because they have become infected, but they become septic because they die or while they are dying.

The course of unfavorable cases is the following: After the operation patients wake distressed; breathing is heavy; the bandage presses heavily; the characteristic symptom is the cardiac weakness and the quick, feeble abdominal pulse that is almost pathognomonic; the abdomen becomes distended, the

countenance pale; there is thirst and vomiting, increase of temperature, and tympany; the pulse becomes worse. These symptoms are not due to ileus, peritonitis, or sepsis.

The logical deduction from this view is that in cases of organic or weak heart we should not operate, but wait. Before operation, starving or drastic purgation is contra-indicated. The technique must be good; the after-treatment, very careful washing out of the stomach, warm enemata, tonics, quinine subcutaneously. Lives are to be saved by careful selection of cases, good preparation, conservative operation, and careful after-treatment.

#### THE STERILIZATION OF SYRINGES BY BOILING.

In a communication to the *Centralblatt für Chirurgie*, 1896, No. 27, HOFMEISTER claims to have solved the question of the sterilization of syringes. Although much time and thought have been expended in the effort to devise means by which syringes for surgical and bacteriological purposes could be easily and quickly rendered sterile, no satisfactory method has been proposed heretofore. Of all the new patterns of syringes that have been recommended, none has sufficient merit to displace the old form with the leather packing, and yet it has not been possible to make the latter aseptic.

The observation, by the author, of the fact that catgut could be boiled without injury after first hardening in formalin solution, led him to apply the same process to leather. It was found that common leather which was allowed to stand for twenty-four hours in a two- to four-per-cent. solution of formalin could be boiled in water without losing its softness, durability, or elasticity. Leather so prepared has been boiled for ten hours without damaging it; a slight deepening of the color was the only change to be observed. On the contrary, leather not so treated becomes, soon after boiling, so soft as to be useless, and can be torn easily; after drying, it makes a mass as hard as stone, which can be crushed into powder.

The experiments brought out the fact that the formalin leather which was boiled one hour each day for several days, and dried each time, retained its natural and useful qualities better if subjected to the formalin solution before each boiling than if macerated once only.

These experiments led him to adopt the following process for sterilizing syringes:

1. Only such syringes as consist of glass, metal and leather are suitable. The metal parts should not be fastened by putty, but should be screwed to the cylinder.

2. The piston with the leather packing is taken out and placed in ether or benzin to remove the oil.

3. It is then transferred, for twenty-four to forty-eight hours, to a two- to four-per-cent. formalin solution.

4. After rinsing thoroughly, the syringe may be put together and is ready to be boiled.

5. When ready for boiling, the air is to be driven out of the cylinder by filling with water. Glass syringes should be put in cold water and gradually heated.

6. From time to time the piston with the leather packing is to be placed again in the formalin solution. After removing the oil the leather should be examined to see that it has not shrunk. If the piston fits closely, then it will not shrink in the subsequent steps of the process.

After two months' trial the method has proved itself to be practical.—*American Journal of the Medical Sciences*, November, 1896.

#### TREATMENT OF VENEREAL BUBOES.

PERRY (*American Journal of the Medical Sciences*, November, 1896) considers the treatment of non-suppurating buboes under the headings: (1) by external applications; (2) by the hypodermic injection of medicinal agents into the substance of the gland; (3) by incision; and (4) by excision.

The most important means to employ when a bubo is seen early and it is decided to try abortive measures, are rest in bed, belladonna ointment, and spica pressure of the groin. In a very few cases these measures will cause a disappearance of the inflammatory symptoms. The writer has long since given up this treatment, however, as unreliable and unsatisfactory, and now treats all buboes seen before suppuration by another method.

Several antiseptic substances, for injection into the inflamed gland, have been used as a means of aborting buboes. Dr. M. K. Taylor several years ago called the attention of the profession to this method of injecting a solution of carbolic acid; he claims that one injection generally succeeds in aborting a bubo, that suppuration is rare, and that a cure is effected in eight to ten days. He uses a solution of ten grains to the ounce, and injects twenty to forty minims.

Harvey also speaks of the efficacy of this treatment, and says the time of election for the injection is just prior to suppuration. Others have tried carbolic acid, but have been disappointed with the results obtained, and at the present time this agent is seldom employed.

A one-per-cent. solution of bichloride of mercury has also been highly lauded as an efficient remedy in this class of cases. Nannino reported twenty-seven buboes successfully treated by injecting this drug. The author has treated five cases by this method, in all of which there was intense pain, produced by the medication, that lasted for hours; in one case there was severe constitutional disturbance, the febrile symptoms lasting six days; and all went well on to the formation of an abscess, necessitating an incision. The average duration of treatment in these cases was seventeen days. He soon discontinued the method on account of the severe pain it produced.

Dr. Welander, who first called attention to the marked influence of benzoate of mercury in the treatment of buboes, reports some extraordinary results, and says that in the majority of non-suppurating cases it will cause a subsidence of the inflammatory symptoms in a few days, and that resolution will be prompt. Of seventy-eight cases reported by him, fifty-six were cured without any suppuration; but in the remaining number some pus formed in the centre of the gland, necessitating a puncture. Spitschka confirms the results of Welander. Brousse and Botherat reported ten cases treated by this method, nine of which suppurated.

The writer's experience with the benzoate of mercury has been so satisfactory that he employs it in the treatment of all non-suppurating buboes, and also in those in which the formation of pus is suspected but distinct fluctuation is absent. In fact, his experience teaches that it acts most beneficially in buboes in which suppuration is threatened.

The injection should be made under the same aseptic conditions as when a surgical operation is contemplated. He generally injects twenty or thirty minims with a hypodermic syringe, passing the needle well into the substance of the gland at one or more points.

The medication causes a burning pain, which usually lasts about two hours, and some constitutional disturbance; fever ranging from 99° to 104°, and continuing for a few days. In some cases there is rise in

temperature only after the first injection, while in others there is an elevation after each use of the drug. The shortest period of fever recorded was one day, the longest six days, and the average three days.

In two or three days after the commencement of treatment the bubo is much diminished in size, and resolution is taking place. In all of the author's cases some pus, generally small in amount, formed in the centre of the inflamed gland, but at the same time resolution was taking place in the periphery. As soon as any suppuration is detected, a small puncture is made, all the pus squeezed out, the small abscess-cavity irrigated with peroxide of hydrogen, and an antiseptic dressing applied. In a few days all discharge ceases, the remaining induration rapidly subsides, and the bubo is cured.

In all, Perry has treated twenty-two cases by injection with one-per-cent. solution of benzoate of mercury in non-suppurating buboes. In all, 306 days' treatment was given, and the average time necessary to effect a cure was 13.9 days.

He considers this treatment far superior, in the majority of buboes, to excision of the inflamed glands, since it is a trivial one, there is no danger of an accident and no need of an anesthetic, the scar is scarcely noticeable, and the time necessary to effect a cure is much shorter. 'On the other hand, the excision of a large bubo is not a simple operation; it leaves a large cavity which, in the vast majority of cases, must heal by granulation, weeks being consumed before cicatrization; and finally a large and unsightly scar is left. Again, discarding everything in this comparison except the element of time, and weighing the most favorable statistics the author has seen on excision—union by first intention in one-half of the cases—still the scales tip in favor of the benzoate treatment.

In recent years excision has become the favorite method of many surgeons for treating non-suppurating buboes, but the results obtained have been so unsatisfactory that several who formerly excised all inflamed glands have abandoned the operation and treat by external application until pus forms, when the bubo is incised and treated as an ordinary abscess.

Excision of all implicated glands means a difficult and somewhat hazardous operation in a dangerous anatomical region. Accidents have happened in the hands of the most skilful operators; the most serious are wounds of the femoral and internal saphenous veins.

nous veins. The hemorrhage is often profuse, and complete enucleation of all the diseased glands leaves a cavity that seldom heals before considerable time has elapsed.

Dr. Watson believes in thorough excision, and reports twenty unselected cases, in ten of which he secured union by first intention. His statistics are the most favorable, and probably few other surgeons have been as successful. Martin says the time consumed will be from two to eight weeks, depending upon the size of the bubo excised.

The treatment of suppurating buboes may be (1) by incision and treating as ordinary abscess; (2) by incision and curettement; (3) by puncture, evacuation of pus, and distention of the cavity with medicinal substances; and (4) by thorough excision of all diseased glands.

The treatment by incision alone has not yet yielded very brilliant results, the average number of days consumed being thirty-two.

Incision and curettement has not given much better results than simple incision. It is true, though, that the cases in which curettement is used are generally more severe, and consequently the results are not so favorable as if this extreme measure were used in all suppurating buboes. This treatment is advisable in those cases in which the skin has been destroyed and there is left an unhealthy granulating ulcer.

Karl Szadex reported 274 cases of suppurating buboes treated by incision, curetting, and packing with iodoform gauze. The average duration of treatment was thirty days.

Dr. Scott Helms removed the pus by aspiration, injected the cavity with a solution of carbolic acid, and after this was thoroughly squeezed out, distended the abscess cavity with a ten-per-cent. iodoform ointment.

Fontan treated the incised bubo with iodoform and vaselin, and reported forty-one cases. The average time of treatment was six or seven days.

Dr. Otis reported sixteen buboes treated by this method; nine were cured in six days, one in fourteen days, and one in twenty-three days.

Dr. Hayden describes his treatment as follows: Make a small puncture through the skin at the most fluctuating point of the bubo; thoroughly evacuate the pus; irrigate the cavity with peroxide of hydrogen, then with bichloride solution, 1 to 1000; press out all the fluid; distend the cavity with warm vaselin holding in suspension ten per cent. of

iodoform; and apply a cold bichloride dressing to favor congealment. The patient should be kept quiet for forty-eight hours, and the dressings removed on the third or fourth day; if no pus has formed, another injection of iodoform ointment is not necessary; but if the suppuration has not entirely ceased, the bubo should be re-dressed in the original manner. He reports fifteen cases, in which the average duration of treatment was twelve days, and in twelve of these one injection was sufficient.

From the above statistics the writer states that he is led to conclude:

1. That buboes are probably caused by the absorption of chemical poisons, the result of the action of the micro-organisms in the chancre, and not by the entrance of the micro-organisms themselves into the lymphatics.

2. That the benzoate of mercury yields such satisfactory results that it should be employed in the treatment of non-suppurating buboes, and excision reserved for those cases in which benzoate has failed.

3. The injection of iodoform ointment should be used in the treatment of all freely suppurating buboes, since statistics show that it yields much more satisfactory results than the other methods of treatment applicable to this variety.

4. Incision and curettement should be used in a few cases in which the skin has been destroyed and the ulcer presents an unhealthy granulating surface.

5. Excision should be reserved for cases that have not yielded to other treatment, and for those in which there are several foci of suppuration.

#### *DRAINAGE IN ABDOMINAL SURGERY.*

BISHOP (*Medical Press and Circular*, Oct. 28, 1896), after a consideration of the theoretical advantages of drainage, holds that artificial drainage is distinctly required in operations on tubes, wherever practicable, and in all septic operations; that it is beneficial in cases where pure asepticity is doubtful; and that it is distinctly hurtful in cases which are absolutely aseptic and in which the patency of a tube is not involved.

The means by which drainage may be carried out are very numerous, and must be adapted to the nature of the case. The central idea is a tube of some kind, and a force by means of which the tube is emptied and kept empty, so that the end nearest

the absorbent wounded surface is kept dry. The tube may be a large one, as in the glass tube used often after laparotomy, or an extremely minute one, as in the case of drainage by strands of silk or gut. The force may be supplied by a suction-pump, as is done in drainage by a large glass tube; or it may be capillarity, as in Mikulicz's gauze drain; or, again, the action of gravity—this is not often obtainable in abdominal surgery, although it is sometimes taken for granted when using a vaginal drain; and, lastly, the tube may be a natural one; and the force also one of the natural forces of the body, as in drainage by the intestinal canal, where the force is that exerted by the muscular wall of the intestine.

The materials used for drainage may be best considered when the matters drained have been reviewed. These last are blood, lymph, pus, bile, urine, and feces.

Blood simply should never require artificial drainage, being in itself aseptic. If it exists in quantity, it means a bleeding vessel, which requires pinching, torsion, ligature, sponge-pressure, cautery, or solid astringent, as the case may be. If the amount lost is less than this, and is aseptic, it will be absorbed and will do no harm; if more, it will clot and block up any drain introduced, and in an hour the drain will be perfectly useless. The true way of dealing with small quantities of blood or large amounts of lymph is by setting the natural suction-pump to work. This will be referred to later.

Lymph is a material which does not require drainage, for the same reason. It does not show its presence in quantity at the time of operation, and should be looked upon as building material pure and simple. If the amount thrown out is more than is required, it should be left to the natural process, which will soon dispose of it.

The presence of pus may be said to be the one main reason for drainage. Pus may escape into the general peritoneal cavity before an operation, as in pyosalpinx. In most of such cases it is advisable to leave a drain when closing the abdominal wound, so that any material of this kind left behind may be carefully removed. If the abscess can be opened without disturbing the limiting adhesions or membrane between it and the peritoneal cavity, drainage of the abscess itself is imperative, and this can often best be done by a gauze drain *a la* Mikulicz. By this means the space can be kept dry, the inner pledgets of gauze being frequently

changed, while the actual surface of the walls is not disturbed. More especially is this mode of drainage useful if the walls of a cavity have to be sewed to the parietal peritoneum in consequence of inability to finish removal of suppurating cyst from too intimate adhesions to the surrounding structures.

When the exit of bile has to be provided for, rubber tubes are probably the best to use; glass would be preferable, but the irritation of its inner extremity and the possibility of fracture is against its use in this situation.

When urine and urinary organs are in question, we require drainage in three situations, for different reasons.

In the region of the kidney, if the kidney has simply been opened, we require a drain to carry off as quickly as possible the unavoidable leakage of urine, and prevent its infiltration into the connective tissue and fat around; and here large-size rubber tubes are best. In this position, gravity is the force available. When the kidney has been removed, it is wisest to use a tube for two days, since air is sucked into the tissues by the respiratory movement of the diaphragm, and without a tube its exit is impeded by the valve-like action of the soft tissues which encompass the cavity produced. But the outer opening of the drainage tube must be very carefully protected so that any air that enters may be rendered aseptic by passing through cotton wool or gauze.

MacEwen introduced the use of decalcified chicken-bone drains. The writer has not had satisfactory results from their use. The idea is to obtain a drain which shall not require removal—that shall act during the time required, and then become absorbed, so allowing the original dressing to remain unchanged until healing is complete. The chicken-bones do act for a while, but then they form a flocculent mass which effectually blocks the further exit of fluid and delays effective union. The same objection applies to catgut strands, which make a smaller but hardly less objectionable mass.

Drainage by capillarity is the object sought to be obtained by the latter method, as also by strands of horse-hair or silkworm-gut. Horse-hair is inadmissible inasmuch as, owing to the manner in which the epidermic scales of which it is composed are set, it will travel either into or out of the wound in which it is placed. Silkworm-gut is the best material for this kind of work. But drainage by capil-

larity appears to be based entirely on a false idea; only serum, blood and lymph can be removed by it, and these imperfectly, and if the wound be aseptic the method is ineffective.

The most important means of drainage we possess in abdominal surgery, however, is the natural suction-pump, the intestine. This is an advantage which abdominal surgery possesses over that of all other regions in the body. All writers on the after-treatment of laparotomies, etc., lay stress upon the desirability of securing early action of the bowels, and such action is looked upon as in most cases securing safety from peritonitis. But the exact manner in which that safety is produced has not, as far as the writer knows, been clearly defined. It is not, of course, merely because the lower bowel has been emptied, that an operator feels safe. The presence of decomposing, offensive material in the rectum is, of course, objectionable, but the absorptive power of the rectal mucous membrane is not great, and the mere removal of this load would not make the immense difference to the prospects of the patient that is associated in the surgeon's mind with the fact that the bowels are in action. Moreover, in all these cases the bowels have been cleared before operation, and often enough the amount passed is but small in comparison with the relief experienced. Indeed, the surgeon is not very anxious about any patient who has passed flatus naturally, even if no solid matters have escaped per anum. The passage of a stool only emphasizes the fact that the bowel is acting normally, and shows that it does so with a fair amount of strength.

The small intestine fulfils many duties in the economy, but for our purpose, and after operations involving the peritoneal cavity, it may truly be looked upon as a living suction-pump, or a long sponge, which when properly acting, by the vermicular action of its muscular coat, is constantly drawing up, through the myriad stomata in its serous coat, into the lymph-channels of its walls, all fluids from the cavity which it completely fills, and forcing such fluids onward into the bloodstream, where they can be dealt with by the various excretory organs. By its steadily recurring rhythm of contraction and relaxation not only are its fecal contents passed on into the rectum and so out, but any fluids in the peritoneal cavity are sucked up and pressed onwards away from the free surface of the peritoneum, where they might form a

stagnant pool in which bacteria could develop. Thus the salutary result of the action of the gut is not due to the actual passage of feces through it, though doubtless this assists, but to a separate function, the activity of which, however, we can gauge by the coarser and more visible results.

That the utmost good may result from such action, it is evident that it should be started soon. Should it be delayed, the amount of fluid to be disposed of in the abdominal cavity may become too great to be easily and expeditiously carried away; some fluid will then remain in a state of rest, under conditions of warmth, etc., eminently favorable to the development of bacteria; and when this in its turn is absorbed, poisoned toxins are present and are absorbed with it, producing septicemia, or the paralyzing effect of these toxins may be so great as to prevent any effective action on the part of the natural suction-pump. Peritonitis will then rapidly develop.

Tait, as is well known, advises the use of saline aperients, seidlitz powders to be begun at the earliest possible moment upon the appearance of any sign of peritonitis. If the foregoing explanation of the benefit to be derived is correct, however, it will be seen that it is wiser not to wait for any such signs, which evidence the result rather than the cause of the necessity for such action. The natural suction-pump will act with more certainty as well as with more force when it has but little, and that innocuous, fluid to act upon, rather than when that fluid has developed poisonous qualities which at the same time tend to paralyze its action and are themselves dangerous to the system through which they must pass before they can be finally eliminated.

Calomel in small doses, frequently repeated, has served us very well, but there is an advantage, of course, in using a saline purgative if possible. The presence of a saline fluid in the intestine of a higher specific gravity than that outside favors dialysis, and tartrate of soda in one- to two-drachm doses has proved very effectual, while free—in the writer's patients—from the risk of causing vomiting. Turpentine enemata assist; but the old-fashioned soap-and-water enema mixed with half an ounce of castor oil has been found the most effective of all. This has come to be relied upon as certain if used after two or three doses of the soda salt have been given. But, for the reasons insisted upon above, treatment is begun early.



*THE TREATMENT OF CERVICAL ADENITIS.*

In the *Boston Medical and Surgical Journal* of December 3, 1896, F. M. BRIGGS calls attention to a valuable method of treating this affection.

For a period of five years he has acted upon the theory that cervical adenitis is not a source of systemic infection, that the glands can be left *in situ* with perfect safety, and that their excision is called for only in exceptional cases. With every year, experience proves the soundness of this conclusion.

The first object of treatment in all cases of cervical adenitis is to bring about subsidence, by treatment of the cause if that is evident, by direct treatment of the gland itself if no cause is at hand. In chronic cases even where the cause can be clearly demonstrated, treatment must often be both general and local. As regards the use of drugs, this must depend upon the individual case: mercury, iodide of potassium for syphilis, iron for anemia, quinine, strychnine, nux vomica, calisaya, cinchona, malt, etc., or any proper combination of such drugs, as indicated. Cod-liver oil is surrounded by a time-honored halo; it is a question whether it has the specific action on these glands that it is supposed to have; it is indicated where the condition of the patient shows that fat is needed; one teaspoonful three times a day is enough for any adult, and a smaller quantity for a child.

As regards local treatment, the external use of tincture of iodine is often of great benefit, but it should be applied intermittently, not continuously. It should be painted on heavily for three or four days, then omitted until the skin has recovered, and again applied for three or four days. Even where there is no immediate apparent effect, Briggs continues its use in this way for a long time, and has seen subsidence occur in cases which he thought to be hopelessly chronic—whether as a result of treatment, or a coincidence, he is unable to say. Personally, he gives the benefit of the doubt to the iodine.

Contractile collodion, applied thickly, sometimes causes subsidence. It is indicated only where one or two glands are involved and where they are comparatively soft.

Injections of carbolic acid into the gland tissue is recommended, but as the author has never tried this method he can give no opinion as to its merits.

It would not be an overestimate to state that in fully ninety per cent. of all these

cases, we can expect one of two results, namely, subsidence or pus. Supposing, however, that in any given case subsidence does not occur, and no abscess results, but the indolent masses stay enlarged, with little or no change; should such glands be excised? The writer is strongly opposed to their removal until there is positively no further chance of a cure by absorption—that is to say, until the long-continued chronic inflammatory process has caused a true tissue change. But just when this time can be said to have been reached, is a very difficult point to decide. He makes it a rule that no such gland be removed until it has remained unchanged for twelve months. He emphasizes *unchanged*, for if during that time it has gone partially down, then enlarged again, he considers that there is still chance for absorption.

Excision of cervical glands is not a satisfactory operation. If only a few glands are to be removed at the time, others are liable to enlarge and call for one or more future operations; and if a whole chain, both superficial and deep, is involved, the removal is no slight matter, either at the time or afterwards.

In conclusion, there is left to be considered a very frequent result of cervical adenitis, namely, cervical abscess. Having already written twice at some length regarding the treatment of cervical abscess, with reference to the avoidance of scar, the writer only briefly recapitulates what he has published in previous articles.

Since his last report, made in May, 1895, in which he gave a table of thirteen cases, he has added to the list numerous other cases that he has treated; but as the results have been, with one exception, uniformly good, and similar in every way to the results already recorded, he adds no further notes. Out of some forty cases treated, he has had but two scarred necks. The almost invariable rule is either no scar, or a mark so slight as to be merely a blemish.

He has named his method the cannula treatment, and it is simple and satisfactory. His results are obtained by using a little self-retaining drainage cannula. The skin-cut is barely three-eighths of an inch in length, just long enough to admit the cannula, which upon being inserted is pushed in until its joint is reached; it is then reversed by closing its outer arms, when it is retained within the cavity, dilating the tissues in the vicinity of the cut and giving good drainage

through a minimum cut. It should be left in place from twenty-four to seventy-two hours, but usually two days are sufficient. The shorter the time it is left in, the better the result; and it is wiser to err in removing it too soon than to leave it in too long, for it can be reinserted easily at any time should further drainage be needed.

Syringing and curetting are not needed. Nothing should enter the abscess except the knife which opens it and the cannula which drains it. In the average case, healing follows in from five to seven days; but if the gland is only partially destroyed when pus is evident, the case may take many weeks. In these cases a persistent sinus is left, calling for treatment. It is here that injections and curetting are called for. He dilates these sinuses with olive-pointed bougies, scrapes with a small curette, and injects with any one of the various stimulating or irritating solutions, according to the apparent condition of the lining wall of the sinus. These cases are extremely tedious, but the final result is good.

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*MASSAGE MOVEMENTS AND BANDAGING  
IN THE TREATMENT OF DIS-  
PLACED SEMILUNAR  
CARTILAGES.*

DOUGLAS GRAHAM, of Boston (*American Journal of the Medical Sciences*, November, 1896), quoting Allingham, states that the semilunar cartilages may slip forward, backward, inward, or outward. The internal semilunar cartilage is the one most often at fault.

As to the symptoms in general: The knee is usually semiflexed and cannot be extended; but flexion is usually free in recent cases. The foot is turned outward when the internal semilunar cartilage is displaced; inward when the external semilunar cartilage is displaced. In most cases little or nothing abnormal can be felt about the joint, except the position of semiflexion and a little tenderness at the head of the tibia. Rarely can the cartilage be felt projecting, and, even when it does, synovitis may supervene in a few hours and mask the symptoms.

As to the causes: Though any violent accident may produce internal derangement of the knee-joint, yet most cases would probably coincide with Dr. Knott's instructive description of his own case: "It has always been the result of a very slight, and in every instance an indirect, violence. This violence

has always been applied so as to produce a twist at the knee, either of the leg outward or of the femur inward. The most common cause has been striking the inside of the great toe against something when the knee has been slightly flexed, the parts about the joint as relaxed as possible, and the muscles thrown off their guard." He never suffered any derangement when the limb was in a decided state of active motion.

Scott Lang points out that the internal semilunar cartilage is displaced in rotation of the leg outward combined with flexion; the external semilunar cartilage in rotation of the leg inward combined with flexion; and that the injury is caused by some sudden and almost involuntary movement when the muscles governing the joint are off their guard or fail to act in concert with one another. A lax condition of the ligaments and muscles of the knee joint from general debility or previous synovitis would predispose to these accidents.

Laying aside cases that require surgical interference by cutting into the joint, the indications for treatment are very clear. Restore the cartilage to its natural position, if possible. Retain it there. Strengthen the joint and muscles so that they will be less likely to be caught off guard.

Various suggestions are made as to the methods to be pursued to replace the semilunar cartilage. When one fails, another is tried. A method that seems to be much relied upon is: Flex the leg as much as possible upon the thigh, then rotate the tibia inward if the inner cartilage is displaced, outward if the outer one is displaced, and extend the leg quickly upon the thigh while pressing with the thumb where the cartilage is supposed to be out of place. The opposite procedure—extension, then flexion with pressure—sometimes succeeds. As it may be very difficult to ascertain whether a cartilage has slipped out of place or not, Dr. Samuel J. Mixer has made the very shrewd suggestion that every case of sprain or twist of the knee should be put through the movements of replacing a dislocated meniscus. But if a semilunar cartilage is not displaced, it is very evident that such a procedure would hurt the patient unnecessarily and be very likely to aggravate a sprain of this joint, or even cause a displacement of the cartilage in a sprained knee.

With regard to the second indication, it does not appear that a ham-splint or a plaster cast is so direct and effectual in retaining a

semilunar cartilage and supporting and comforting the knee, as a pad with a snug bandage over the offending region. Moreover, there would seem in some cases, at least, to be a tendency of these cartilages to slip back into place even when attempts to readjust them had failed; but if the joint is immovably fixed by a ham-splint or plaster cast, its power to adapt itself to a return of the cartilage by gentle change of motion is prevented, which is not the case with a pad and bandage. For the relief of the heat, pain, and swelling that result from a sprain, wrench, or twist, massage properly applied is most satisfactory, while for the preservation of the circulation, nutrition of the muscles, and prevention of atrophy, it has proved quite effectual when applied early.

As displacements of the semilunar cartilages are most likely to occur when the muscles are off guard, so to speak, our endeavor should be to strengthen these muscles so that they will not be "caught napping." The behavior of the muscles in this manner is due in great measure to a loss of "muscular sense," the restoration of which is promoted in an astonishingly agreeable manner by means of massage, which at the same time helps to bring back the automatic action of will and spinal cord in presiding over these lazy sentinels. And this will be still further aided by alternating massage with carefully graduated movements of pushing and pulling, and of voluntary efforts at holding the leg extended. A few minutes' application of the faradic current to the quadriceps extensor muscles immediately after the massage sometimes seems to have a more invigorating effect than either alone, and, moreover, the contractions caused by the faradic current are but another and useful form of motion—semi-active, semi-passive.

Walking with the foot turned inward is considered to be a good precautionary measure when the internal semilunar cartilage is liable to slip out of place, with the foot turned out when the external cartilage is likely to slip, according to Scott Lang; but as either of these positions allows all the more latitude for rotation in the opposite direction when the knee is semiflexed, it can only be safe so long as the patient receives no violence to throw the leg in the opposite direction; whereas, if the patient walks with the foot turned out and the knee extended, where it is a question of preventing dislocation of the internal semilunar cartilage, then, as the knee is already in the position where

the cartilage is liable to be displaced, but with the muscles on guard, unexpected violence is resisted, and the range of dangerous motion is reduced to a minimum.

In cases that have required operation for the removal of the semilunar cartilage, or for stitching them in place, the joint is generally stiff for two or three weeks after the operation. Dr. Allingham recommends daily massage and passive motion, and later, that the patient try to sit on his heels. A much safer plan than the latter is for the patient to hold on to something, such as the mantel-shelf or the foot of a bed, so as to graduate and control the weight upon the knee.

Neither in their natural or their unnatural positions can semilunar cartilages often be distinguished from the surrounding tissues.

In cases requiring surgical operation, the treatment above indicated may be safely tried in some instances before cutting into the knee-joint, but more especially after operation for restoring motion and strength to the knee.

#### *A NEW METHOD OF RADICAL CURE OF INGUINAL HERNIA WITHOUT SUNKEN THREADS.*

An article in the *Semaine Médicale* of November 11, signed by Professors DUPLAY and CAZIN, illustrates a way in which the hernial sac may be tied without threads, which frequently produce trouble later. The sac is first opened and explored with the fingers, all adhesions detached, and a portion of the omentum resected if necessary. The sac is then completely dissected, and an assistant draws out the base with a pair of forceps as far and as long as possible, with that portion of the peritoneum normally situated two to three centimeters above the internal inguinal ring. The operator then seizes the end with another pair of forceps and draws it around and through to make a knot, as high up as possible; the ends remaining above the knot are then split and one end is drawn around and through in the same way, to make another knot, or passed through a slit in the other half, and this is repeated as often as the length of the sac will allow. In one case the sac was so short that it was split in four pieces and the four ends tied in knots, two by two. A strong fastening is thus made without the introduction of any foreign substance, remarkably simple and perfect in its results. When the traction ceases it sinks out of sight immediately, as in the classic operation. It was always found that the

highest part of the knot remained two or three centimeters above the internal inguinal ring. The operation is completed in the usual manner. If the sac is too thick to be tied in this way, it can be split and knots made in each half separately.—*Journal of the American Medical Association*, Dec. 26, 1896.

**REMOVAL OF TUMOR OF THE MESEN-  
TERY, RESECTION OF FORTY-FOUR  
INCHES OF INTESTINES, END-  
TO-END ANASTOMOSIS WITH  
MURPHY BUTTON.**

G. W. MASTON, in *The Medical Brief*, relates the case of a male, forty-nine years of age, who had noticed an enlargement in his abdomen for over three years, which had caused considerable discomfort. The tumor was movable, and a diagnosis of solid tumor of the mesentery, probably malignant abdominal, was made. The intestines were intimately attached to the growth.

Operation was decided upon. The tumor was hard, six inches in diameter at the widest point, two inches at the narrowest, and about two inches thick; it proved to be a spindle-cell sarcoma. Anastomosis was performed with a large-sized button, the upper end being put on a stretch when the button was *in situ*. The operation occupied one hour and left the patient with a good pulse. Following the operation liquid food only was given for twenty days.

Considerable lancinating pain in the abdomen was complained of, and four months after the operation much borborygmus was felt; the stools were thin and ashen-hued. The patient died in great pain five months after the operation.

Post-mortem disclosed the intestine united for about three-fourths of its circumference, with an ununited portion at the mesenteric border; the button had lodged about six inches below the point of approximation, and produced perforation. There was no contraction of the gut at the point of union.

**A NEW METHOD OF TREATING STRIC-  
TURE OF THE RECTUM.**

BACON, in *Mathews' Medical Quarterly*, proposes the method given below in strictures of the rectum. In January, 1895, this author published a method for stricture which consisted of a plastic operation, using the sigmoid flexure to form a new channel around the strictured portion of the canal, and

claimed it was a sure means of relieving all non-malignant strictures of the rectum located above the levator ani muscle; but for that class of strictures located just above the internal sphincter ani, no plastic operation can be done that will give fecal continence afterward. These strictures have been unsuccessfully treated for ages by various methods, such as gradual dilatation with bougies, forcible divulsion, internal and complete proctotomy, and later by means of electrolysis; they cannot be dissected out and the ends of the bowel united without leaving a circular cicatrix that will reform another stricture of the gut.

Complete proctotomy gives temporary relief by severing the stricture band, but the wound soon fills up with granulation tissue that reforms fibrous tissue, and the stricture is worse than before operation was done. Then, again, in making the complete proctotomy the sphincter muscles are severed, and often do not unite perfectly, and incontinence results. Bacon has successfully tried his present method and found that it does not interfere with the sphincter muscles, yet accomplishes permanently what complete proctotomy only does temporarily. The wound made by a complete proctotomy—that is, when an incision is made, beginning with the rectum and cutting through the stricture band back to the coccyx and sphincter muscles—is the shape of a letter V after the ends of the stricture retract.

If we can prevent this triangle from filling up with fibrous tissue, the severed stricture band must disappear by absorption. In order to accomplish this the author produces a mucous fistula between the stricture and the coccyx, so that after the proctotomy is made the mucous tract will be at the bottom of the wound and prevent the union of the severed stricture bands.

The operation is simple and quickly done, and practically free from danger. The patient having been thoroughly anesthetized, the operator takes a blunt-pointed aneurismal needle, threaded with a very heavy silk ligature, and at a point just above the internal sphincter on the posterior rectal wall in the median line punctures the gut and carries the needle point well back into the perirectal tissue to the coccyx, and up behind the stricture above the upper limit, when the needle is forced through the rectal wall into the rectum. The ligature is now seized with a blunt hook or dressing forceps, and one end drawn down through the stricture opening, and the

needle withdrawn. The two ends of the seton are now securely tied, and left hanging outside the anus. The loop of thread is left long so as to avoid severing the stricture, as it is necessary to have the seton in place for about three months to get a continuous mucous tract. There is practically no pain following the operation if the thread is tied outside of the anus and a loose loop left. Out of eighteen cases there has been no infection from the ligature or abscess, as the drainage is complete. At the end of three months the patient is again anesthetized and the seton withdrawn; a grooved director is passed through the fistulous tract behind the stricture, and the intervening stricture band severed with a Paquelin cautery. The patient is kept in bed one week after the seton is inserted, and again one week when the stricture is divided. For two weeks after each operation the bowel is irrigated daily with solution of boracic acid.

The writer reports three failures, which he believes due to not taking in more tissue above and below the stricture band, so as to catch all the scar tissue above and below the real constriction.

#### THE BETTER OPERATION FOR HEMORRHOIDS.

VAUX (*The Canadian Practitioner*, December, 1896), Resident Assistant of Mt. Sinai Hospital, New York, describes the routine treatment in that institution as follows:

On admission the patient is given a bath, and if hemorrhoids are strangulated an ice-bag is applied to anus; should they be merely smarting and inflamed, a wet Thiersch dressing is applied. The night preceding operation the patient is given a half-ounce of compound licorice powder, and at 5 A.M. a high enema, followed by a low one at 7 A.M.; if necessary these are repeated, the test being that the fluid comes away absolutely clear. No food is given on the day of operation. The perineum is shaved in the ward, but the scrubbing up of the patient is in the operating room. When the patient is anesthetized, the first assistant dilates the sphincter and thoroughly cleans the rectum with soap and water, by means of a sponge and holder, and then it is irrigated; the perineum and thigh are scrubbed with soap and water, followed by ether and bichloride of mercury; wet bichloride towels are laid over the pubes and around the field of operation. Absolute antiseptic precautions are observed, the prep-

aration of hands being the usual form for operations, and all instruments most carefully sterilized. There is no room in Mt. Sinai for the idea that the rectum is dirty, and therefore hands and instruments may be dirty too; as a consequence, sloughing or pyemia is almost unknown. A good-sized sponge with string attached is wrung out of bichloride and introduced high into the rectum, and the assistant, grasping the string, makes sufficient traction to protrude the internal piles.

The technique of the operation may be summarized under three headings:

1. Apply the clamp in the long axis of the hemorrhoid so that the scar may be a radiating one, and thus avoid any chance of cicatricial stenosis.
2. Dip the distal end of the clamp well down, so as to include the mucous membrane of the hemorrhoid in its entire length, though only clamping off about one-third of its substance. Be sure that no skin is included, otherwise the subsequent edema will be very great and time of recovery lengthened.
3. Sear the hemorrhoid slowly from above downward, layer by layer, the cautery being only at a dull red heat; by observing these precautions any subsequent hemorrhage is avoided.

4. Insert a tampon cannula as described below, which must not be removed till expelled by the first stool.

When the anesthesia wears off the pain will be intense, and opiates must be given. At 5 A.M. on the morning of the third day a half-ounce of magnesium sulphate is given, and at 7 A.M. an oil enema is administered through the tampon cannula; this is important, as it saves much pain when the tampon is expelled. The enema being expelled brings the cannula with it, and the first stool is comparatively painless. On each succeeding morning a half-ounce of magnesium sulphate is given, and on the fifth day the edema will have disappeared in great part, and by the eighth day patient is ready to go. No dressing save a piece of iodoform gauze and a T-binder is used. In a ligature operation the bowels are moved on the fourth day, and in a Whitehead on the fifth.

The tampon cannula mentioned above is made by taking a piece of half-inch rubber tubing, sterilizing it, and wrapping around it several layers of iodoform gauze; it is then anointed with sterilized vaselin, and after the operation, is inserted in the rectum. The tampon cannula serves a double purpose: it

allows the escape of secretions and flatus, so that all danger of retained hemorrhage is avoided; and also allows the primary enemas to be given without much pain.

In conclusion, he reviews the advantages of the clamp and cautery: It is antiseptic; not only can the clamp be readily sterilized, but the cautery itself is the most powerful germicide; there are no sloughs to separate as in the ligature operation; there are no ligatures or sutures to offer any chance for infection; it is a radical cure; the operation is a rapid one; the time of convalescence can be definitely fixed—the eighth day. The operation, which was formerly but little employed, is now in high favor in the New York hospitals. The record of hemorrhage, pyemia, or death is almost negative. In five hundred cases operated upon in Mt. Sinai, by the above method, there has not been a single death. One case of pyemia from which the patient recovered is recorded, and a few slight hemorrhages; and, so far as can be ascertained, there have been no recurrences.

#### PREVENTION OF FOLLICULAR TONSILLITIS.

MAXSON (*Journal of Practical Medicine*, December, 1896) states that prevention of follicular tonsillitis is desirable in at least two classes of cases: those occurring during an epidemic, and those where there are repeated attacks occurring from once a month to once a year. Those occurring only during an epidemic can be prevented by a mild antiseptic throat wash, with or without the internal administration of benzoate of soda. The chronic cases, which are subject to frequent and repeated attacks, are very annoying to the physician and damaging to the patient's health. Such has been his experience until he applied a treatment that he has lately found, known and used by others, but which is not mentioned in any literature that he has access to. The treatment consists in destroying the contents of each follicle that is diseased in both tonsils. He does not think that the follicles themselves, but only the colonies of germs that make an abiding place therein, are destroyed.

It is the writer's custom to take a doubled piece of silver wire, such as is used for sutures, and solder its free ends to a large wire; then dip the doubled silver loop into melted nitrate of silver, so as to make a small bead on its end, after withdrawing it from the melted silver salt. The silver wire is then

bent half an inch from its distal end, so as to make an angle of forty-five degrees. This bead of caustic is inserted into each follicle to its bottom; the depth will vary from one-fourth to one-half an inch. One caustic bead will usually treat from one to two follicles. By means of several beads all the follicles may be treated. This treatment is undertaken at any time except when the tonsils are acutely inflamed. It requires one or two treatments effectually to prevent its return. He has used this treatment for eight or ten years, and found it entirely reliable, and knows of no case that has not been given a very complete immunity even when subject to attacks every two to eight weeks before the treatment.

#### EUCAINE HYDROCHLORATE AS A LOCAL ANESTHETIC.

G. W. SPENCER, in the *Medical and Surgical Reporter* of November 28, 1896, presents further evidence in regard to the action of eucaine as an anesthetic. He believes it is a valuable addition to our resources; it is rapid in action, safe, produces positive and prolonged anesthesia, causes no serious after-effects, and can be rendered aseptic by boiling; it is the best local anesthetic before the profession.

In the nose, throat, and eyes, eucaine has given great satisfaction, and operations upon these parts can be performed without a particle of pain. In operating upon these regions solutions similar in strength to those of cocaine may be employed, but we use a much greater amount of solution of eucaine than of solution of cocaine. There is not much difference as regards the rapidity, intensity and duration of the anesthesia caused by each of these agents. The greatest difference between cocaine and eucaine is that eucaine can be administered in large doses without danger, while corresponding doses of cocaine would put the patient in deadly peril. Cocaine in the hands of not a few, given in very small doses, has caused marked symptoms of poisoning.

Dr. Spencer then details twenty-four cases in which eucaine was employed. The technique consisted in making an incision over the median line and in the long axis of the trachea. This incision extended from the upper border of the cricoid cartilage, downward for two inches; it divided the skin and superficial fascia. The anterior layer of the cervical fascia was then incised, and the

sterno-thyroid and the sterno-hyoid muscles were separated. In each case the isthmus of the thyroid gland extended well up on the trachea, and it was found necessary to incise the fascia which invested it in order to expose the trachea. The said fascia was incised by a transverse incision at the upper border of the cricoid cartilage, and this allowed the isthmus to be lifted and pushed downward. In each case three rings were incised and a tracheotomy tube was inserted. The operation in each case lasted about twenty minutes, and anesthesia was complete throughout.

An analysis of the twenty-four cases mentioned will probably convince the reader that in eucaine we have an agent which is safe and reliable. Three cases are considered major operations, and while ten were not so considered, they were such as ordinarily require the use of a systemic anesthetic to permit of operation. The operation in four cases was greatly facilitated by using a drug that induced anesthesia, but which allowed the trachea to be controlled by the patient. With anesthesia by eucaine these patients are conscious and can keep the trachea still during critical stages of the operation; in anesthesia from a systemic anesthetic, mucus accumulates in the lungs and stomach, and efforts at expulsion keep the trachea constantly in motion, which movement greatly interferes with the operation. Chloroform and ether irritate the lungs and predispose the patient to acute bronchitis and pneumonia. Tracheotomy itself is a predisposing factor in pneumonia.

Taking these facts into consideration, it is well to select an agent to allow of a painless operation, which will not affect the respiratory organs injuriously while operating in their locality. No pulmonary symptoms followed the use of eucaine in any of the above cases. One case had mitral regurgitation; two drachms of a five-per-cent. solution had no effect on the circulation. Another case had an irritable heart, and she was very nervous; two drachms of a five-per-cent. solution acted as a sedative to her condition.

One case had a pint of pus in the left pleural cavity; this naturally deprived the heart of a portion of its space. Two drachms of a five-per-cent. solution had no effect on the circulation or respiration. The average duration of anesthesia from eucaine is about twenty minutes; the time to wait for complete anesthesia is five minutes. Two drachms of a five-per-cent solution used hypodermic-

ally will in the majority of cases be sufficient to induce anesthesia; but larger amounts can be employed if necessary. The number of sutures used in the operations were ninety-three. After using and seeing sutures employed in so many cases, the author does not agree with the assertion made by Fuller that eucaine exerts a hardening action on the tissues.

#### *HYSTERECTOMY BY COMBINED ABDOMINAL AND VAGINAL OPERATION.*

PENROSE (*American Journal of Obstetrics*, December, 1896) states that for the past year he has been performing complete hysterectomy for cancer by a combined method of operation through the abdomen and vagina. In the combined operation as usually performed, the vaginal part of the operation is done first, the abdominal part last.

In the method of operating which he followed he has begun through the abdomen and finished the operation by way of the vagina. This method seems to present several distinct advantages. The following is the technique: The abdomen is first opened; the ovarian arteries and the round ligaments are secured by ligatures; the broad ligament is divided down to the level of the internal os, and the bladder is dissected from the anterior face of the uterus and the upper portion of the vagina; a small gauze pad is then inserted in the space between the bladder and the upper portion of the anterior vaginal wall; a similar pad is inserted at the bottom of Douglas' pouch, immediately behind the upper portion of the posterior vaginal wall; the abdominal incision is then closed; the woman is placed in the dorso-sacral position; the cervix is exposed through the Sims speculum; the posterior vaginal fornix and the anterior vaginal fornix are opened by incisions made directly over the gauze pads—the incision may be made boldly and quickly, because the pads prevent intestinal injury; the vaginal mucous membrane is then divided on the sides of the cervix, and the bases of the broad ligaments are secured with large forceps; the uterus is then cut away, and removed through the vagina; the gauze pads are withdrawn and the vagina is packed with gauze.

The advantages which this method of combined operation possesses over the operation which is usually performed, of entering the vagina first and finishing through the abdomen, are the following: The dirty part of the operation is done last; the septic cervix is

withdrawn through the vagina and not through the peritoneal cavity; the vaginal part of the operation is facilitated by the preliminary separation of adhesions in the upper part of the pelvis, by the division of the upper portions of the broad ligaments, and by the dissection of the bladder from the uterus, this operation being easier from above than by way of the vagina.

The operation seems also to possess some points of advantage over the operation of complete hysterectomy from above as it is usually performed to-day. In complete hysterectomy the vaginal vault is either closed by suture after the uterus has been removed, or, more usually, the safer method is followed of leaving the vaginal vault open and draining by gauze through the vagina. If the latter method is employed there is usually infection of the ligatures which secure the uterine arteries, with resulting persisting sinuses. This difficulty is, of course, avoided by the use of catgut ligatures.

Again, when the vaginal vault is opened from above the operator cannot determine with certainty that the incision is made outside of all infiltrated tissue, and in case of cancer of the cervix it is frequently necessary to excise a portion of the vagina after the uterus has been cut away. This is contrary to the sound surgical advice, to remove cancerous tissue in one mass when possible.

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#### INGUINAL ORCHEOTOMY: A NEW METHOD.

*The Lancet* of December 12, 1896, contains a paper by HANDLEY in which he advocates the following procedures:

He prefaces the description of his method by the statement that standard books on operative surgery recommend an incision extending from a point just below the external ring to the bottom of the scrotum; the object of this long incision is to ensure free drainage of the abundant cellular tissue of the scrotum, in which hemorrhage is so likely to occur. It must be admitted that a collection of disintegrating blood-clots in this region may be a source of intense septic poisoning. It can be shown, however, that this long scrotal incision produces those very evils which it is designed to prevent. In the first place, it gratuitously involves cutting through a large extent of the vascular subcutaneous tissue of the scrotum, and thus directly conduces to hemorrhage after the operation, with its accompanying evils. Hav-

ing produced the hemorrhage, the incision provides a ready entrance for septic organisms; this is partly due to the contractility of the scrotal skin, which makes accurate apposition of the edges an impossibility, partly to the difficulty of keeping a dressing securely applied to the scrotum, and partly to the septic character of the surrounding region of the skin. Moreover, any urine which escapes will drain downwards into the wound. It will be seen that the conditions for the production of suppuration are almost ideal, and, indeed, the after-progress of castration wounds is at present notoriously unsatisfactory.

The method Handley advocates—which he terms the inguinal, as distinguished from the present or scrotal method—avoids all these evils; it is based on the principle that all interference with the scrotal tissues during the operation is dangerous and unnecessary. An incision of from one inch to one and a half inches long, and slightly curved, with its concavity looking downwards and outwards, is made over the external abdominal ring in the line of the spermatic cord. The cord is exposed and isolated; it is then seized with the fingers of the left hand and pulled gently upwards. With a blunt dissector the subcutaneous tissue is freed, first from the lower part of the cord, and then from the testicle as it appears in the wound, the left hand keeping up gentle traction on the cord while this is being done. The testicle is delivered through the small incision and the cord dealt with in the usual manner. Afterwards the scrotum is invaginated through the wounds in order to inspect the bed of the testicle for bleeding points, which in the two cases he has operated on were conspicuous by their absence. The incision is then closed by a continuous horsehair suture.

This method has many advantages over the scrotal method of castration. The short incision passes through the firm cellular tissue over the external ring, and the testicle is shelled out without any disturbance of the loose vascular tissue of the scrotum. The slightness of the vascular connection between the testicle and its bed is shown by the frequency with which it appears in the wound during the operation for the cure of inguinal hernia; hence the risk of hemorrhage into the tissues after castration is done away with. Owing to the absence of dartos the edges of the incision can be accurately brought together, and in forty-eight hours the risk of infection from without is past.



The delayed union so common in scrotal incisions is avoided. It may be well to include the scrotum in the dressing, pulling it upwards and forwards; should it, however, slip down on the perineum, the incision will still be well covered by the dressing. If it is thought preferable a sealed dressing may be applied immediately after the operation. Any sealed dressing applied to the scrotum itself would certainly become loosened by the darts within a few hours, but on the smooth skin over the external ring it may be relied on to keep firm and close. Should any dribbling of urine occur, the incision is well above the end of the penis instead of being immediately underneath it, and is thus much less likely to get wet. Finally, though this point is unimportant, the time of the operation is shortened, because there is less trouble with bleeding, and the incision can be more quickly sewn up. In the two cases on which, by the kindness of Mr. R. Clement Lucas, he has had the opportunity of trying this method, healing took place by primary union without rise of temperature or other complication. The long scrotal incision appears to be a relic of the time when surgeons recognized that their wounds must of necessity become foul cesspools, to be drained and cleared out on ordinary sanitary principles. A scrotal incision is only necessary when the testicle is much enlarged, or adherent to the skin.

#### CLEANSING AND CLEANLINESS IN ABDOMINAL SURGICAL OPERATIONS.

LAWSON TAIT (*Medical Record*, Dec. 19, 1896), in an interesting paper on the above subject, gives the following directions: First of all, if an operation such as the removal of an ovarian tumor has been conducted so well and so fortunately that nothing has entered the peritoneal cavity, the wound ought to be closed at once without sponge or anything else entering it. If, on the contrary, a mess has been made inside, it must be cleaned out; and the question is to decide on the best method, and the weight of argument should always be against the use of sponges—they are so inherently dangerous. Yet their use is often essential; thus, in separating adhesions of the omentum to a tumor nothing displays the ability and dexterity of a surgeon so much as the rapid folding up of a dry sponge in the damaged apron; or, if the adhesion of the appendages to the pelvic wall bleed freely, the pelvis must be packed, and the packing will probably remove much

dirt with it. Until two years ago the author always used sponges for this purpose, and would often have six or eight sponges squeezed tight down in the pelvis; now he uses iodoform gauze for this purpose. Who it was who led us to make this important advance he does not know; but it is one of real value, for iodoform gauze stops oozing from parietal and visceral surfaces in a way that nothing else will do, save perchloride of iron. If, however, a ligature has cut through a rotten parietal, or a vessel has escaped the forceps and ligature and cannot be found, washing out with a stream of clean water will speedily display the source of the bleeding and enable the vessel to be secured. He does not combine the two processes if he can help it, for they do not generally aid one another.

As Tait believes that pus is a substance already dead and generally decomposing, he takes the utmost care to cleanse it all away, or anything which from his view more or less imitates it, such as loose blood-clot and blood in solution. The method to be employed in this case is the continuous stream; the best way to serve this purpose is simply to reverse a stream of common tepid water through one of his ovariectomy trocars, and he uses a large one if he wishes to dislodge and wash out loose clots by means of a large volume of water issuing from a large tube; or, on the other hand, if he wants to wash carefully every inch of the peritoneal surface, he uses a small tube with a gently flowing stream. If the tubes are not handy—and in our worst emergencies, like ruptured pregnancy, they may not be—a very efficient substitute is to open the wound as widely as possible, pull up the parietals, and pour in with cautious violence one or more jugfuls of tepid water, insert the right hand into the abdomen, and with the left close the wound round the wrist as closely as possible. The process of washing may then be carried out as fully as is considered desirable. If a tube of the Tait pattern can be obtained, it is better to use it, for it can be carried into every one of the complex interstices of the peritoneum, and the washing be thereby made most thoroughly; but the inexperienced operator should be cautioned against using a double tube for entrance and exit, as has recently been recommended. This is no new proposal, and when such is used the stream does not get spread but returns at once, short-circuited, as the electricians say, and without doing much cleansing. Care must be used to have the temperature of the water not lower than 100°

F., and not higher than 103° F., and it must be borne in mind that few women, and none of the nurse type, have any sense of temperature in their hands. To them, "blood heat" may be anything between 75° and 120° F.

The further or secondary cleansing of the peritoneum is secured by the use of the drainage tube, to be considered at length in another chapter.

#### SOME AFFECTIONS OF THE FEMALE BLADDER.

GARCEAU (*Boston Medical and Surgical Journal*, Sept. 10, 1896), in an instructive discussion of this subject, sums up as follows: Out of the forty-three cases, thirty-three, or seventy-six per cent., had had previous bladder trouble. This shows the frequency of vesical irritation in pelvic diseases. Of the ten cases in which there was no previous bladder trouble, the catheter was required in four; no irritation followed. Of the thirty-three cases, in twenty-four the catheter was used. Looking at the twenty-two cases in which no trouble followed operation, we find ten in which the catheter was used. This is certainly evidence that the catheter does not cause irritation. Looking now at the other twenty-one cases, we find the catheter was used in fourteen; they were either better or no worse of their irritation after operation, with the exception of six, and these six all suffered severely from bladder irritability before operation. It seems to be a fair conclusion, therefore, that the catheter, when properly used, has no effect in causing vesical disturbance, and that it will be found that those who have vesical irritability after operation had it before. It is not argued that the catheter does not cause infection when improperly used; in three cases out of the forty-three a distinct history of infection was obtained, dating in all three from retention of urine after confinement, the catheter being used.

The treatment of cases of vesical hyperemia is very unsatisfactory at times. Attention to the general health is of paramount importance. Digestion should be attended to, and, above all, the bowels should be kept freely moving in order to relieve the pelvic congestion as much as possible. It is needless to say that any coexisting pelvic disease should receive appropriate treatment. Local applications of nitrate of silver, and in some instances of glycerite of tannin and ichthyol, have been distinctly beneficial. Great relief

will be given by the use of the fine coil of the faradic current; here the bipolar vaginal electrode may be used, or one electrode may be placed over the bladder on the abdomen and the other in the vagina. In one patient this treatment was always followed by a good night's rest. If the urine is abnormal, this should be corrected. The various diuretics and vesical sedatives have been tried, but the results have not been remarkable.

Finally, if the patient continues to suffer, absolute rest in bed, with mild, unstimulating diet, must be insisted upon. This measure will nearly always be productive of good results. If it fails and the trouble continues, the question of artificial vesico-vaginal fistula is presented for consideration. The immediate relief given by this measure is most grateful to the patient; the very night of the operation she sleeps soundly, and wakes up refreshed in the morning. The urine drains away through the vagina, and gives a much-needed rest to the irritable sphincter. The woman quickly recovers her lost nervous tone, is more placid and peaceful, and is not harassed by the continual desire to urinate which made life a perpetual torment. The fistula must be left open a sufficiently long time—in cases of cystitis, until the pyuria has entirely disappeared. Another point to be emphasized is that the fistula must be made close to the sphincter; for if made high up near the cervix the urine will pocket below it, and so the operation fail because the irritation is kept up as before, the drainage being imperfect.

Pregnancy need not be considered a contraindication to this operation; on the contrary, the occurrence of pregnancy may so intensify the symptoms from the increased hyperemia as to render the operation imperative. This was so in one case of cystitis, in which a vesico-vaginal fistula was made. The patient's sufferings were intense, and she insisted upon having relief. The operation was entirely successful, and the pregnancy (three months) was not disturbed.

In conclusion, a word may be said about the method of making examinations of the bladder. The most comfortable position for the patient is the dorsal; the examiner also will find it easier to work with the woman in this position. In the knee-chest position the ureteral orifices are more prominent, but if the examiner is near-sighted he will find it rather difficult to get close enough to examine properly, on account of the cramped position he is obliged to assume. If ether be given,

the dorsal position will be chosen for obvious reasons. Ordinary daylight, with or without sun, gives ample illumination; the table should be placed close to a window, however, in order to have the light as strong as possible. If artificial light be chosen, a good strong gas-light must be used—preferably an Argand burner; the greatest care must be exercised not to burn the skin in case ether is used—this is an accident that easily happens, and the burns are most annoying and may be very serious. If the ureter is to be catheterized, the best place for the light, if gas, is at the side of the woman which corresponds to the ureter to be examined, and not on the abdomen. The examiner stands not in front of the woman, but on the side opposite to the light; if he examines the left ureter, the light is on the woman's left side and he stands on her right. This brings the ureteral opening directly in line with the light and the examiner's eye, and avoids cramped positions; the illumination is much better, as the light is reflected directly and not at an angle. For this idea I am indebted to Dr. Edward Reynolds, who was the first to suggest it. The examination is made much easier by means of it.

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## Reviews.

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**THE PRINCIPLES OF THEORETICAL CHEMISTRY.** With Special Reference to the Constitution of Chemical Compounds. By Ira Remsen. Fifth Edition, thoroughly revised.

New York and Philadelphia: Lea Bros. & Co., 1896.

The fact that Professor Remsen is one of the leading chemical authorities of the United States, renders anything which he may publish worthy of purchase by those who are interested in chemistry. This little manual is the clearest exposition that we know of which deals with chemical constitution, and it is fortunate for American students that they have placed in their hands such a lucid description of what to some persons proves a difficult subject of study.

**DISEASES OF THE STOMACH.** A Text-book for Practitioners and Students. By Max Einhorn, M.D.

New York: William Wood & Co., 1896.

Within the last few years the study of diseases of the stomach upon a rational and scientific basis has made extraordinary advances, chiefly through the work of German clinicians; although American and French investigators have followed not far behind their distinguished Teutonic leaders. Of these, perhaps the first are Ewald in Ger-

many and Einhorn in America. The numerous original contributions which Einhorn has made to this subject render him quite equal to the task of compiling the volume of nearly five hundred pages which we now review.

The book is copiously illustrated, describes all the more recent tests and methods of examining the stomach and its contents, and almost every page has its statements fortified by copious bibliographical references. The author is also careful to give full credit to American investigators in this field, and speaks in terms of high praise of the work of Dr. D. D. Stewart, of Philadelphia, whose name is already familiar to the readers of the **THERAPEUTIC GAZETTE**.

We bespeak for Dr. Einhorn's little manual the enthusiastic reception which it deserves.

**ARTIFICIAL ANESTHESIA.** A Manual of Anesthetic Agents. By Lawrence Turnbull, M.D., Ph.G. Fourth Edition, revised and enlarged. Illustrated.

Philadelphia: P. Blakiston, Son & Co., 1896.

In the preface to this fourth edition of Dr. Turnbull's well known book he tells us that he examined all the important works published since the third edition appeared, and many of the forms of apparatus which have been modified or recently introduced. He has also taken pains while abroad to study the methods of administering chloroform in Scotland. The result of this renewed study is to confirm him in the belief that ether is by long odds a safer anesthetic than chloroform, and he expresses regret that Wood, Da Costa and Carter have attempted to show that ether is more dangerous than we have heretofore thought it.

The book contains a large amount of useful and valuable information.

**PTOMAINES, LEUCOMAINES, TOXINES AND ANTITOXINES: OR THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE.** By Victor C. Vaughan, M.D., Ph.D., and Frederick G. Novy, B.Sc., M.D. Third Edition, revised and enlarged.

Philadelphia and New York: Lea Brothers & Co., 1896.

Those who are familiar with the earlier editions of this book will note that the authors have made a distinct addition and innovation in discussing, besides the ptomaines and leucomaines, the even more interesting subject of toxins and antitoxins.

The volume at the present time gives perhaps as complete a summary of what we know concerning these interesting subjects as can be found in any language, and certainly it affords the best which has appeared in the English language. Although the subject of ptomaines and leucomaines would not

at first glance seem interesting to the practitioner, the wide popularity of the earlier editions has rapidly exhausted them, and has shown that the profession in general appreciate such a summary of scientific progress and record of original work.

THE DISEASES OF THE MALE URETHRA. By R. W. Stewart, M.D., M.R.C.S.  
New York: William Wood & Co., 1896.

Many members of the medical profession—practically all who are especially interested in genito-urinary surgery—are familiar with the admirable articles which Dr. Stewart has published from time to time dealing with urethral surgery. It is with considerable pleasure that we welcome a book from the pen of this original and gifted writer.

The book opens with a chapter devoted to the anatomy of the male urethra, after which follows a discussion of Urethritis. This is classed as acute and chronic, and anterior and posterior. In regard to posterior urethritis he writes as follows:

"There is at the present time a growing tendency to the belief that acute posterior urethritis is such a common concomitant of acute anterior urethritis that it should be considered exceptional when it does not accompany the latter disease. The advocates of this theory claim that the disease is often overlooked and the frequency of its occurrence much underestimated, and also that it appears much earlier in the course of acute anterior urethritis than has generally been supposed. Statistics have been given to show that in eighty per cent. of cases of acute anterior urethritis a posterior urethritis is also present. . . . I am perfectly willing, as will be shown later, to concede the frequency of chronic posterior urethritis, but neither the experience I have had, nor the investigations I have made, warrant me in entertaining the belief that this disease is nearly as frequent a sequence of acute anterior urethritis as is indicated above. If we believe that infection of the deeper portions of the urethra takes place through the medium of the lymphatics, then we can readily conceive that the posterior urethra would rarely escape infection; but believing in neither, I must hold that acute posterior urethritis should be regarded as a complication, not as an essential part of a gonorrhea. In fact it must be considered the most serious complication liable to arise in the course of acute anterior urethritis, since it is a necessary forerunner of gonorrheal epididymitis, cystitis and pyelitis."

As to the diagnosis of acute urethritis, he states that we have settled back to the comfortable position of relying chiefly upon clinical symptoms, except when a clinical diagnosis is difficult or impossible. It is unfortunate that Stewart lends the weight of his influence to this teaching, since with the exception of a small coterie in this country it is probable that specialists the world over are relying more and more absolutely upon microscopic examination, not only for diagnosis, but as a means of directing their treatment.

The irrigation treatment is, he holds, disappointing, and injections are not advised until the period of decline of gonorrhea.

There is one paragraph with which all men of judgment and experience will heartily agree. Stewart states: "The cure of gonorrhea is often delayed by overanxiety or overactivity in its treatment, and it will often progress more favorably if permitted for a time to pursue its own course toward recovery." The section upon Stricture, though concise, is particularly clear, original and forceful, and can be commended without reservation.

A PICTORIAL ATLAS OF SKIN DISEASES AND SYPHILITIC AFFECTIONS. In Photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris: with Explanatory Woodcuts and Text. Parts V and VI. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, and L. Jacquet. Edited and Annotated by J. J. Pringle, M.B., F.R.C.P.

London: The Rebman Publishing Co., Ltd. Philadelphia: W. B. Saunders. 1896.

The GAZETTE has already stated its opinion of the manner in which authors and publishers have cooperated to produce an Atlas of Skin Diseases which bids fair to rival all its predecessors.

Part V contains photo-lithochromes with brief clinical descriptions of Conglomerative Tricophytic Folliculitis, Lupus Pernio, Papulo-tuberculous Syphilides, Vacciniform Infantile Ecthyma, together with a number of woodcuts.

Part VI contains photo-lithochrome plates of Ulcers and Scars in an Habitual Cocaine Consumer, Tricophylosis of the Skin, Syphilitic Hyperkeratosis, Psoriasis Figurata. The text accompanying these beautiful pictures is particularly clear.

THE SURGERY OF THE CHEST. By Stephen Paget, M.A. Oxon., F.R.C.S. Illustrated.  
New York: E. B. Treat, 1897.

In this work, the only one of its kind, the author has embodied the results of the accumulative records of thoracic intervention, to-

gether with those of his own personal experience. The first chapter is devoted to Landmarks of the Chest and General Malformations. Concussion and Contusion are next considered. In regard to concussion the author has no explanation to advance for the severe or even fatal shock which sometimes follows a comparatively slight trauma of the chest. The treatment is that applicable to shock. In the chapter devoted to Fractures and Dislocations of Ribs, Costal Cartilages, and Sternum, special attention is devoted to costal fracture in the insane. Paget states that the weight of evidence seems to be against the occurrence in the ribs of the insane of any definite changes directly due to insanity. Complications of fracture and internal injuries are considered at length, including trauma of the Lungs, Blood-vessels, Pleura, and Heart. Chapters are devoted to Emphysema, Pneumothorax, Hernia of the Lung, Wounds of Intercostal and Internal Mammary Arteries, and Hemothorax. It is stated that the intercostal arteries are rarely wounded in the operation for empyema; two cases are reported. Dulac by cadaveric experiments found that this artery may be readily wounded by an incision close to the lower border of the upper rib, either in the sixth, seventh, or eighth space, alike in the anterior, lateral, or posterior part of the chest.

A number of cases of wound of the intercostal artery are quoted.

In treating wounds of the lung he quotes as applicable what Rose says of wounds in the region of the heart:

"Certainly the worst thing of all for the patient is 'thorough examination.' We have got past that bad time in surgery, when a man would not leave a fractured pelvis alone till he had made it crack, or, as he called it to pacify the patient, till he had established beyond doubt the presence of crepitation. Why should we treat cases of internal wound or injury worse than we now treat a fractured pelvis? In all such cases I avoid all repeated examinations; I make the examination with all gentleness; I never probe the wound or put my finger in it; I percuss the patient softly, do not ask him to breathe hard during auscultation, and prefer not to listen to his back, rather than set him up in bed without some special reason, or disturb by any movement the delicate half-formed adhesions, which are our chief hope of his recovery. But there are still cases where, in spite of all my warnings and orders, these rules are broken, and the excessive zeal of some of my

assistants for accurate diagnosis has retarded healing and brought the patient into grave danger of death."

Cases in point follow. General Operative Treatment is briefly considered; Wounds of the Heart are dealt with at length; then follow Wounds of the Diaphragm and Diaphragmatic Hernia.

The second portion of the book is devoted to Diseases of the Chest and has to do with affections of the Bones, with Tumors, Pleural Effusions, Abscesses of the Lung, Gangrene, Phthisis, Diseases of the Bronchial Glands, and Foreign Bodies in the Air Passages. To the Surgery of the Heart is devoted a special chapter. Finally, Subphrenic Abscess and Operation through the Pleura for Hydatid Cysts of the Liver are considered.

The Appendix includes Reclus' Address upon Thoracic Surgery and Bulow's Treatment of Empyema by Continuous Syphon Drainage.

There can be no question as to the value of this book nor as to the skill with which the disseminated reports in modern surgical literature which bear upon the subject considered have been utilized in the formulation of sound conclusions. The book is one so valuable to the surgeon that he should not be without it.

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## Correspondence.

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### *LONDON LETTER.*

BY ST. CLAIR THOMSON, M.D., M.R.C.P., F.R.C.S.

The New Year has opened auspiciously for the profession in this country. The first news which greeted us on the 1st of January was that Sir Joseph Lister had been made a peer. This is the first time that a medical man has been given a seat in the House of Lords; we may therefore be excused for looking on it as an epoch-making occurrence in the social history of medicine. For Lord Lister himself one does not stop to even view the event as an "honor;" the government honors itself in bestowing the title. It is the whole profession which is to be congratulated on this public recognition of one of its members. At the same time one cannot quite get away from a feeling that Lord Lister's peerage has not been entirely bestowed for his professional eminence; had it been so, it should have been offered to him ten years ago; one is therefore obliged to acknowledge that it is because of his eminence as a scien-

tist and his present position as President of both the Royal Society and the British Association. Still, after all, the important and encouraging point for the whole profession is that our Upper House is no longer reserved for successful merchants, lawyers, and those who "cut, hack, tear, and shoot"—as Mr. Godkin describes the military class in this month's *Century Magazine*—but that its doors, which have been gradually opening to science, literature, and art, have now finally admitted one who has been instrumental in saving more lives than Wellington and Napoleon ever destroyed.

Even if peerages were to be more frequently offered to members of the profession, I do not think there is the least likelihood that many would be accepted; so long as peers have to keep up what people are pleased to term the "certain state" which it is presumed must accompany that position. One of our journals assures us that the day of large practices is over for ever; and that there is now such a general leveling-up of the profession that even the most successful practitioner finds that "the road leads up hill all the way; yes, to the very end," and hence he is not likely to be able to accumulate the fortune necessary to pay for powdered flunkies and other similar gewgaws. Lately, too, the papers have been suggesting the creation of a cheaper class of consultants with fees somewhat smaller than the usual tariff; this class to be recruited from younger men waiting to move up to the higher grade,—in fact, analogous to an arrangement that exists at the Bar. The idea has not been at all favorably received. Then, again, the profession continues to increase in numbers so as to be out of all proportion to the wants of the public; the inevitable consequence will be keener competition and smaller professional incomes. This excessive growth of the profession is shown by a study of the Medical Directory for 1897. From this we gather that the profession includes 958 names more than the year before, a larger increase than has ever before occurred in any previous year, except 1894. This increase is ubiquitous, but it is interesting to note the proportion of medical men to the population in different parts of the kingdom. Thus we see that London has twice as many practitioners (two in 850) as the provinces, while Edinburgh has one practitioner to 500 inhabitants, and Dublin comes next with one to 600. It has been suggested that the disproportionate increase in the number of

medical men in these University towns is due to the fact that they attract many who earn their living by the teaching rather than by the practice of the profession. But I would also point out that very large numbers of medical men recently qualified, or traveling, or retired, give their address in one or other of the capitals of the three United Kingdoms, and that therefore the actual percentage of medical men is not as excessive in our large towns as these figures would lead us to suppose.

Amongst other causes which thin our receipts is the ever-increasing army of quacks. One rogue, a "cancer cure," has just been sent to prison; but this was not because he defrauded poor people by pretending to cure cancer, but because he made some statements which landed him on a charge of perjury. This worthy claimed to have studied and obtained his diploma in the Eclectic College of Philadelphia (a now suppressed diploma-mill, I understand) at a date when he was living in England as an artisan! But of course one conviction on a side issue will have little effect on the hordes of charlatans, and it is hardly to be wondered at that the struggling practitioner is clamoring for the Defence Societies to be active in obtaining some protection in this quarter.

Another question which is "in the air" is that of hospital abuse. That powerful body, the Charity Organization Society, appears to be intent on carrying through its scheme for a Central Hospital Board for London. This would certainly be a first real step in the direction; for this Board would contain representatives from all the hospitals and medical colleges; it would, while leaving each hospital its individual autonomy, to some extent supervise and report on how it was conducted; it would check and direct the distribution of charity; and, in brief, would regulate and federate hospital administration in London. One of the tasks it would set itself would be the reform of the out-patient department.

The action brought by a nurse against Dr. Cullingworth for wrongful removal of an ovary was, as I have already written, lost by her. The case has just come on before a court of appeal, and the verdict in favor of Dr. Cullingworth has been confirmed.

There has been a good deal of fluttering lately in the dove-cotes of the nurses. About a year ago the editor of *The Practitioner* started the exposure, not of the properly trained nurse, as he has been wrongfully accused of doing, but of the wrongly trained

or wrongly behaved nurse. His views were confirmed by many of the leading medical papers on your side, and it is quite evident that both the profession and the public in America are feeling the incubus of the "Nurse à la Mode" as much as we have. The above is the title given by a lady (not a nurse) to an article in the *Nineteenth Century*. Being in a lay magazine it will further arouse attention to certain members of the nursing sisterhood who would have brought their colleagues into considerable disfavor if this exposure had not taken place in good time.

A body of registered nurses are now in arms against the proposal to admit to their association asylum attendants, who may be excellent watchers of the insane, but have never had a hospital training in the usual sense of the term. The question is not settled yet. A large number of the nurses appear to object to the asylum attendants being enrolled in their ranks, although their own executive seems to favor the idea.

For many years past the medical papers have carried on a crusade against the antique, ridiculous, and disgusting manner in which the oath is administered in our courts of justice. In case it should be unknown in the States I may briefly state what takes place: The witness has an old, filthy New Testament thrust into his hand; an official of the court gabbles over the form of an oath into his ear; and then tells him hurriedly to "kiss the book." This he does in a thoughtless manner, at the same time placing his lips either to the frowsy cover or on one of the soiled pages. Now, it has been discovered that a witness may, if he prefers it, be sworn in the Scottish manner, *i.e.*, with uplifted hand and repeating after the judge the form of oath. Needless to say that this form is free from all sanitary objections which may be urged against "kissing the book," while it is infinitely more dignified and solemn. The medical profession have been the pioneers in introducing, or rather I should say of reviving, the swearing with uplifted hand; and the presiding judges have not infrequently taken advantage of their position to throw cheap ridicule on what they termed the latest sanitary fad of the doctors. Now, at last, the luminaries of the law are themselves realizing the advantages of the Scottish form of oath, and it is proposed that the more usual, but objectionable, method should be abolished.

Are tropical climates particularly inimical to Europeans? The subject is considered in

a well-reasoned, and, as the French would say, "*très documenté*" article in the *British Medical Journal* by Dr. Luigi Sambon of Rome. I dare say some of your readers will remember his courtesy and kindness to visitors to the "Eternal City" during the last International Congress. The subject is of particular interest to a colonizing nation, such as we are, and Dr. Sambon's conclusions are very suggestive. They are, in brief, that if Europeans would but study their new surroundings, and try to adapt their customs accordingly, there is no reason why they and their children should not thrive as well as, if not better than, the natives. Heat, as such, he holds to be rarely the cause of death or disease, for the human body can endure high temperature with impunity. Even "heat stroke," according to his views, is probably not the result of high temperature, but of some germ which becomes active under certain circumstances, of which the high temperature is one. Considering how the average Britisher scorns to alter his insular habits in any way whatever it is really remarkable how he not only survives, but even thrives, in the climates and in the circumstances where he has made himself quite at home. For instance, "India Pale Ale" is an alcoholic beverage which drinkers of light German beer would consider extremely heavy, and yet, as its name indicates, it is the concoction especially brewed for consumption in a tropical climate. To-day I saw a returned colonist from Buluwayo, and he informed me—as if it had been his chief grievance—that whiskey there cost \$20 a bottle. He would doubtless have looked upon me as a scientific crank if I had suggested that whiskey was not at any price the drink for South Africa. The subject raised by Dr. Sambon is an interesting one, and might, if public and governmental attention was directed to it, be a most valuable one. The study of it might prove a very feasible one in the States with their great variety of climate.

The Roentgen rays have temporarily given place in professional interest to the bubonic plague. The history of previous outbreaks in England, including that of the "Great Plague," has been studied under the fresh light of modern knowledge, and many of our journals have published articles by those of our community who have formerly practiced in the East.

In the summary of last year's medical work the most serious blot is, according to my way of thinking, the number of deaths from anes-

law unhappily did not have as much success as was expected of it.

In 1874, however, Dr. Roussel introduced a law which bears his name and which establishes an inspection of all children placed out to nurse. Such a law was undoubtedly needed in a country such as France, where the custom was so general in all large cities of sending the children of the lower classes away into the country to be brought up by hand; the children of the upper classes were nursed at home, it is true, but by hired wet-nurses, who, in turn, had to give their own children to be brought up by hand elsewhere.

A month or two ago Dr. Edward Toulouse, chef de clinique of Mental Diseases, and physician of the Sainte Anne Insane Asylum, published a work entitled "Enquête Médico-psychologique sur les Rapports de la Supériorité Intellectuelle avec la Néuropathie; tome I, Emile Zola" ("A Medico-psychological Examination of the Relations Existing between Mental Superiority and a Neuropathic Condition; Volume I, Emile Zola"). In this work Dr. Toulouse gave the results of experiments which he had performed or caused to be performed on Zola, such as his sensitiveness to pressure, his power of vision, etc. In addition, the pathological history of Zola's family and of the subject himself was described. We learn, for instance, that Zola's mother was subject to certain nervous attacks, and that in his youth Zola himself was affected by a spasm of the orbicularis muscle of the right eye. We learn, too, that Zola is the subject of polyuria; that though he is fifty-six years old his arteries show no symptoms of atheroma; that though formerly a great eater, he is the opposite at present, owing to a tendency to stoutness. His visual field is normal, his tactile power above the normal, but his olfactive power below it. A number of mental tests were likewise employed.

Dr. Toulouse comes to the conclusion that Zola is neither epileptic, hysterical or insane, notwithstanding the existence of various nervous affections, contraction of the orbicularis muscle, cardiac attacks, pseudo-angina pectoris, sensory disturbances, impulsive and oppressive ideas. Zola might strictly be classed among superior degenerates.

Among others who have been examined by Dr. Toulouse are such well known men as Alphonse Daudet, Puvis de Chavannes, Saint Saëns, Berthelot, Jules Lemaitre, and the late Edmond de Goncourt.

As Dr. Toulouse's book is intended to be an attack on the theory of Lombroso that

genius is a species of epileptoid psychosis, this latter author has written a reply which is published in the *Semaine Médicale* of Paris, January 6, 1897, in which he claims that the very facts given by Toulouse in his work are an argument in favor of Lombroso's theories.

In the first place Lombroso has insisted on the advantages of crossing of races and of change of climate. Now Zola's father was an Italian, his mother French; the paternal grandfather was a Dalmatian, and the paternal grandmother Greek.

Lombroso has called attention to the advanced age of the fathers of many illustrious men, such as Napoleon I, Frederic II, Balzac, Burns and many others. Zola's father was married at forty-three years and died eight years later.

Zola's mother, too, according to what Dr. Toulouse himself writes, suffered from nervous attacks of a hystero-epileptic nature, beginning with the globus hystericus, going on to tonic convulsions with contracture, followed by more extended convulsions with subsequent partial amnesia, or even at times sensorial attacks, which were perhaps hallucinatory in nature.

Lombroso ends by affirming that any one bearing in mind the morbid ideas of Zola, his nocturnal fears, his gastric disturbances and mental anguish under certain circumstances, his attacks of vertigo after intellectual work, the contracture of the orbicularis muscle, the polioencephalitis from which he suffered in youth, and his heredity, could doubt no longer that all of Zola's work corresponds to a hystero-epileptic psychosis.

Dr. Henry Duchesne, of Sainte Anne d'Auray, has recently treated thirty-one cases of enteric fever in the following manner, with but two deaths, one being that of a confirmed drunkard:

1. The patient to drink as much as he may desire to of slightly acidulated drinks, water barely reddened with wine, etc.

2. A daily lukewarm enema, to which twenty centigrammes of a 2½-per-cent. solution of carbolic acid is added.

3. Sixty centigrammes of quinine sulphate administered daily in two doses.

For diet, milk only; no beef-tea, or soup of any kind; no astringents, Spanish or Quinquina wines, or bitter macerations; and, above all, no bismuth.

This Dr. Duchesne considers to be the best treatment for the country, where it is impossible to apply cold baths, from the lack of the necessary apparatus and assistants.



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## Original Communications.

### NOTE ON THE LOCAL ACTION OF TETANUS TOXIN: WITH A SUGGESTION AS TO ITS THERAPEUTIC EMPLOYMENT.

By R. L. PITFIELD, M.D.,  
Philadelphia.

In experimental tetanus induced in animals either by inoculation with tetanus pus, cultures, or toxin, it is well known that the parts nearest the site of inoculation become affected first. It is generally thought that the action of the toxin is upon the cord; the higher cerebral centres are never directly affected,

No post-mortem lesion has been discoverable in the cord in tetanus until recently, when, in common with other poisons, Marenesco (*Compt. Rend. Biologie*, July 4, 1896) describes softening of the gray matter found in animals killed by tetanus.

The action of the poison has been compared to that of strychnine; like it, it is no doubt a direct irritant to the cord. There is also marked local action, at least in experimental tetanus.

To study this, four healthy guinea-pigs were each inoculated in a different leg, two with pus and two with toxin. In each animal spasms began in the injected limb, creeping to its opposite fellow and finally killing

the animal in general convulsions. The injection of the poison is painful, much more so than the injection of diphtheria toxin; it seems to be a direct irritant to the sensory as well as motor filaments of the nerves.

Clinically the typical attack of tetanus begins in the muscles of the jaws and face, even if the lesion be remote—say in the foot. In the case related by Welch in Dennis' "System of Surgery," vol. i, a bacteriologist named Nicolar, having accidentally pricked his left hand with a hypodermic needle moistened with tetanus toxin, was seized with a violent attack of tetanus; the contractures began after three and a half days in the left thumb, spreading to the hand and arm. Trismus, opisthotonos, general contractures and convulsions followed, and at the end of forty-one days the patient recovered. It will be seen that trismus did not occur until after local contractures had spread up the arm, showing that the action was first local, acting upon the nerve-endings, finally upon the higher cord, and thence descending.

Not knowing of Nicolar's experience, I injected one cubic centimeter of a much less virulent toxin into the calf of my left leg. The toxin was virulent to a degree, however; the same dose four days previously had killed a 455-gramme guinea-pig in forty-eight hours. The injection was more irritating than an ordinary hypodermic injection, and the parts became rapidly more and more painful. An hour afterwards my leg hurt considerably, there was no increase in any reflexes, and my temperature had risen one degree above normal. I had a headache and felt giddy. Two hours after injection the temperature fell to normal, but the pain became intense; there was spasm of the fibres of the muscles, which became greatly aggravated with use. The only manifestation of the poison was local, but it was most severe and lasted twelve hours.

It has been suggested that the filtrate of tetanus cultures is really not a poison but a creator of toxic substances in the body, by reason of a supposed enzymic action.

It may be that trismus and general manifestations of tetanus are reflexes depending upon an irritation of the terminal filaments of sensory nerves, while the local action is upon the motor-nerve terminations. No pain other than inflammatory is noticed in an infecting wound in clinical tetanus.

Toxin can be recovered from the urine in cases of tetanus, showing that it circulates freely. Most of the toxin remains in the

tissues near the wound; sufficient to kill escapes, however, since excision of an infecting wound one hour after it is made will not save the animal (Kitasato).

If the action of large doses is sufficient to cause softening of the cord, the toxin in small amounts might have a specific stimulating effect upon the cells of a cord undergoing degenerative changes, especially with atrophic manifestations in the muscles. With this in view, at intervals of a few days I administered small but increasing doses of a mildly virulent toxin to a man with mixed sclerosis of the cord. The first dose, .02 cubic centimeter, was followed by a slight rise of temperature. This was true of the second, third, and fourth doses; the latter, two cubic centimeters, caused no local reaction, but a marked exaggeration of already abnormally increased reflexes. Ankle clonus, previously hard to elicit, was easily produced, with strong contractions. Unfortunately, while I was developing some stronger toxin, the patient left the hospital feeling better and claiming to have been benefited.

Such treatment might be of use in subacute or chronic myelitis, especially in children. In case of accident the antitoxin can be used. The patients, of course, would gradually become immune to the poison.

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#### *THE HISTORY AND TREATMENT OF AN INTERESTING CASE OF OVARIAN AND UTERINE NEOPLASMS.*

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BY ALFRED G. DALE, M.S., M.D.,  
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This paper is the outgrowth of many requests from different practitioners who have indirectly heard of the case in question and desire a more accurate account of what one called a "pathological museum."

It is not entirely the pathology in this case that excites the interest, but the size and disposition of the morbid growths are responsible as much as any other factor for the demand for the history and subsequent radical measures instituted for their relief. The case represents one of those exaggerated pathological conditions seen by our surgeons, manifesting the most advanced types of benign neoplastic life.

The patient, a German lady, forty-six years of age, was admitted to the hospital eight months ago, and gave the following history: She had never had any children, and prior to four years ago always considered herself a ro-

bust, healthy specimen of her race. During the enjoyment of absolute health she was suddenly taken, about four years ago, with menorrhagia, which continued with intermissions and exacerbations over a period of twelve months, at the expiration of which time she was so completely exhausted, so nearly exsanguinated, that she was compelled to keep the recumbent position for two or three months, an abject, bedridden invalid. When she finally regained strength and again assumed charge of her household duties, she began to experience moderate pain at the site of the uterus, and discovered a tumor in that locality. Not long thereafter her family physician discovered a second tumor on the right side, then shortly a third on the left side. He recommended a radical operation at the time, but the patient postponed radical measures and followed simply expectant treatment. The growths gradually increased in size, attended by a corresponding increase and exaggeration of all concomitant symptoms incident to the development of intra-abdominal tumors; especially prominent among these were dyspnea and severe pressure-symptoms with extreme vesical irritation and tenesmus, edema of the lower limbs, varicose enlargements of the legs, hemorrhoidal veins, and disorders of digestion.

When the patient entered the hospital the growths had reached enormous proportions, the abdomen was exceedingly distended and severely tense and resisting even to the ensiform cartilage. The recumbent position was no longer possible, and the patient suffered from frequent recurring attacks of syncope and painful traction symptoms due to adhesions.

Prior to the operation her bowels were unloaded completely by large doses of compound licorice powder and warm enemata; the whole body was subjected to two thorough hot baths followed by brisk friction; the vagina was sterilized, and all necessary external antiseptic precautions instituted incident to a laparotomy. Upon opening the peritoneal cavity an enormous pedunculated unilocular ovarian cyst was confronted, springing from the right ovary; it occupied the whole available abdominal space, extending from the diaphragm to the floor of the pelvis. After drawing off the cystic fluid, it was necessary to enlarge the abdominal opening to ten inches in length in order to bring the sac through the incision; and after loosening some adhesions between it and a few loops of the small intestines, right oophorectomy then

removed its attachment. In examining the left ovary it was found to be sclerotic and to give rise to four well defined and separate multilocular cysts ranging in size from that of a hen's egg to that of a hickory nut. Two of them were simple, one was a proliferating cyst, and the fourth exhibited very active pathological changes with glandular masses, representing a true cysto-adenoma. Here, as on the right side, the deep excision of the ovary sufficed for their removal. An examination of the uterus showed this organ also invaded by a neoplasm about the size of a large fetal head. It was deemed advisable to stop at nothing short of a complete supravaginal hysterectomy. Firm adhesions existed between the uterus and bladder; these were carefully separated. The work was much facilitated by elevating the pelvis as in Trendelenburg's position. After the tumor and uterus were disengaged and delivered, the broad ligaments were treated as lateral pedicles and tied off with double silk ligatures in mass successively, and severed between the rows. Having carried the double ligation and separation down to where a narrow mass of uterine tissue remained, which consisted only of the cervical portion of the uterus, the pedicle was constricted by a strong elastic cord of six millimeters in diameter. The whole uterus with its tumor was then cut away at a safe distance from the constrictor, and the abdominal cavity flushed out with a normal salt solution (6:1000), 110° F. After touching the pedicle with a pledget of cotton, soaked in a saturated solution of chloride of zinc, the anterior and posterior surfaces were approximated by a row of deep interrupted silk sutures, followed by a row of superficial uninterrupted silk sutures, and the constrictor removed. One end of a large iodoform gauze tampon was placed against the uterine stump and the other end brought out of the lower angle of the wound. The abdominal wound was sutured in the usual manner, over which was placed an abundant sterilized absorbent dressing.

Under closer inspection, verified by a microscopical examination, the uterine tumor was found to be an intra-mural fibromyomata. The tenacious mucoid fluid drawn off from the large cyst was preserved, and measured 18.08 litres (four gallons). The uterine fibroma, the four smaller ovarian cysts, the fluid and sac of the large cyst, were all weighed, and aggregated fifty-six pounds.

The patient evinced severe symptoms of

shock for the first twenty-four hours. Artificial heat was supplied by the judicious use of hot-water bottles and the internal medication every fifteen minutes of two grammes of brandy, and 0.6 gramme of tincture digitalis and 0.002 gramme of sulphate strychnine were administered hypodermically every alternate hour until reaction was well established.

The gauze tampon drainage was removed on the fourth day and the abdominal wound redressed. The patient left the hospital in five weeks, and when last heard of she reported an absolute uneventful recovery.

#### *ANTISEPTIC DRESSING OF THE GENITAL TRACT AFTER OPERATIVE DELIVERY.*

BY EDWARD P. DAVIS, A.M., M.D.,

Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic; Clinical Professor of Obstetrics in the Jefferson Medical College, and Medical Director of the Jefferson Maternity; Visiting Obstetrician to the Philadelphia Hospital, etc.

Artificial or operative delivery is accomplished without injury to the patient by following the same rules which govern active interference in surgical procedures. In many labors the seat of operation, the genital tract, is in an aseptic condition when interference is undertaken; the hands and instruments of the obstetrician are sterilized, as are those of the surgeon, and it remains for the former to leave the tissue operated upon protected by a suitable antiseptic dressing.

After most instrumental deliveries, wounded tissue is found in three portions of the genital tract: The pelvic floor and perineum are often lacerated, and such tears require dressing, although they may be slight in extent; the cervix uteri is frequently more or less lacerated, and such wounds may readily become infected; the site of the placental attachment within the uterus may also readily absorb septic poison. It is the duty of the obstetrician after labor to leave, if possible, the entire genital tract of the patient in an aseptic condition, and protected from the invasion of septic poison; in other words, wounds in the genital tract should be closed and antiseptically dressed just as much as those in the abdominal cavity, or in other regions of the body.

After normal labor in a healthy woman, the wounds already enumerated are but slight in the cervix and pelvic floor; they are cleansed by the amniotic liquid and blood-serum of the lochia, and unless the parts are

infected at labor, they are after labor in an aseptic condition. If an occlusion antiseptic dressing be placed over the vulva of such a patient, if this dressing be renewed as often as indicated, and the external parts thoroughly cleansed, no direct application is needed for the minor tears after normal labors. When, however, considerable lacerations are present, and especially in young, ill-developed, anemic women whose poor condition favors infection, an antiseptic dressing is urgently required. In choosing such material, it must be capable of exerting gentle pressure, and also of furnishing capillary drainage; antiseptic gauze fulfils this purpose in obstetric practice quite as well as after vaginal hysterectomy.

While some have cast doubts upon the virtues of iodoform as an antiseptic, still the majority of operators are content to use this material within the abdomen or in the uterus. Others prefer, for intra-uterine packing, bichloride gauze 1:2000; either of these materials is now put up by manufacturers in small glass bottles, hermetically sealed, containing sufficient to tampon the uterus and vagina after labor. Such a bottle should not be opened until its contents are required, when the gauze can be taken directly from the bottle and inserted in the body of the patient.

The immediate result of the presence of the gauze within the uterus is to stimulate uterine contractions, and to prevent the formation of a clot of considerable size. The lochial discharge is serous only, but little hemorrhage occurring. In cases thoroughly cared for under antiseptic precautions, the lochia is always serous and endures for a shorter time than in cases not treated in this way.

The reader must distinctly understand that the use of gauze dressings within the uterus and vagina after labor is not proposed after normal labor; it is, however, practiced and commended after cases where birth occurs by operative interference, or where uterine relaxation and hemorrhage are threatened.

In conducting operative cases the physician must prepare to deal with laceration of the genital tract. While the patient is being anesthetized the operator should prepare his forceps, needles, needle-holder, hemostatic forceps, scissors, and suture material, and a pair of curved uterine dressing-forceps for introducing the gauze. While several instruments have been invented for this purpose, they are not superior to a pair of slender

dressing-forceps, which should be perfectly smooth at the ends which grasp the gauze; the serrations usually found on such forceps are very inconvenient, as they tend to pull back the gauze when the operator has introduced it.

The patient being anesthetized, the delivery is accomplished by either version or forceps, or by embryotomy. The patient may then be allowed to come partly from the influence of the anesthetic, when the placenta is expressed with the aid of the patient; or, if haste is imperative, the placenta is removed by Cr  d  's method without allowing the patient to regain consciousness. The uterus is thoroughly explored with the aseptic hand to be sure that all portions of placenta and membranes have been removed; it is then thoroughly douched with bichloride solution 1:8000, or creolin two per cent., at a temperature of 110   F. While the hand of an assistant or nurse rests upon the uterus above the pubes, the operator introduces several fingers of the left hand within the vagina and below the cervix to act as a guide; the end of the gauze is then taken by the dressing-forceps, and gently carried to the fundus of the uterus; the womb is moderately filled with gauze, the end of which is left protruding from the internal os. The hand of the operator is then removed, and the lips of the cervix are grasped in the centre by hemostatic or tenaculum forceps, and the cervix drawn gently downward until a thorough examination can be made of each lip. If lacerations are present, they are closed with chromicized catgut, or with soft silk of large size. The uterus is then anteverted, and the pelvic floor, if lacerated, is repaired; also the perineum, if needed. When lacerations have been closed, the vagina may again be douched with bichloride 1:8000, the cervix carried backward, the fundus being placed forward against the pubes, and the vagina moderately distended with bichloride gauze. If shock or relaxation of the uterus be present, strychnine is given, one-fifteenth to one-twentieth of a grain, hypodermically; the external parts are thoroughly cleansed with bichloride solution; the patient may be catheterized to advantage, and an occlusion bichloride dressing be placed over the vulva and retained by a T-bandage, or fastened to the lower edge of the abdominal binder. The gauze dressing is left in place thirty-six to forty-eight hours, the patient being catheterized meanwhile at regular intervals, and strict care taken that the external parts are

thoroughly cleansed with bichloride solution 1:2000 before and after the emptying of the bladder or of the bowel.

To remove the gauze, the patient should be placed upon her back across a bed, her feet on chairs, while the operator inserts one or two fingers of the aseptic hand, passing them along the anterior vaginal wall to avoid contact with stitches in the pelvic floor. The gauze is gently extracted with dressing-forceps, and the uterus thoroughly douched with bichloride solution 1:8000, or creolin. A copious douche should be given, until the water returns perfectly clear. After the removal of the gauze, and the douche, an external occlusion dressing only is needed, and the case becomes one of the ordinary puerperal state. Such patients, however, are rarely annoyed by the formation of clots within the uterus, while the lochia continues serous and ceases sooner than in cases in which the gauze is not employed. Should a rise of temperature above 100   occur, the uterus should be again thoroughly douched, when the temperature will usually rapidly fall.

The writer's case-books show abundant evidence of the practical value of this method of treatment. It is rare for these patients to have any complication, while complicated deliveries make a more speedy and uninterrupted recovery. He has never had occasion to introduce gauze a second time in the same patient, and has often removed the gauze as early as thirty-six hours after delivery, without complication. In cases where previous infection was present, in the form of syphilis or gonorrhea, such patients have been unusually free from offensive lochia during the puerperal period.

The following cases may indicate those in which this method of treatment may be used to advantage:

CASE I.—Primipara; normal pelvis; delayed labor through resistance of the cervix. Dilatation by McLean's bag, followed by partial engagement; ether anesthesia; Walcher's position and extraction with forceps; cervix and pelvic floor closed by suture; gauze packing of uterus and vagina. On removing the gauze forty-eight hours after its insertion, a small piece of placental tissue was found adhering thereto. Patient made an uninterrupted recovery from labor.

CASE II.—Multipara; death of fetus at seven months from anemia of the mother; spontaneous labor; adherent placenta. Chloroform anesthesia; the uterus curetted with

the blunt douche-curette, and packed with iodoform gauze; the vagina tamponed with sterile gauze. Uninterrupted recovery of the mother, her highest puerperal temperature being 99½°.

CASE III.—Young anemic primipara; prolonged labor; rupture of the membranes; episiotomy; delivery by forceps; gauze packing of uterus and vagina. The patient made an uninterrupted puerperal recovery.

CASE IV.—Multipara; very anemic; formerly resided in Cuba; suffered for several weeks from obstinate pain in the left sacro-iliac joint; normal pelvis. Labor induced on account of mother's weak condition. Cervix excessively thick, requiring dilatation with McLean's bag; forceps delivery; removal of adherent placenta; laceration of one side of cervix, sutured with catgut; gauze packing of uterus and vagina. Patient recovered well from puerperal period, and transferred to orthopedic ward for treatment of the pelvic joint.

CASE V.—Primipara; weak and anemic; prolonged labor from uterine inertia. Slow rotation of the occiput; dilatation by McLean's bag; forceps delivery; tamponing of uterus and vagina with gauze. Highest puerperal temperature 100°. Uninterrupted puerperal recovery.

CASE VI.—Primipara, aged forty; prolonged labor from uterine inertia at term; pelvis normal. Extraction with forceps under ether; tamponing of uterus and vagina with gauze; slight laceration of cervix and pelvic floor, closed by suture. Uninterrupted recovery.

CASE VII.—Multipara, brought by ambulance from a tenement house where she had been in labor several days; child in transverse position, arm prolapsed, and beginning gangrene of the arm; uterus in tetanic contraction, threatened rupture; patient greatly exhausted; fetus wedged in the pelvis, so that version was impossible. Embryotomy; amputation of the arm at the shoulder, breaking up the wedge and permitting version; delivery accompanied by severe hemorrhage; tamponing of uterus and vagina with gauze. Following the removal of the gauze, the patient had a single rise of temperature from sapremia, which yielded promptly to a copious irrigation of the uterus; subsequent recovery uncomplicated.

CASE VIII.—Multipara, brought in by ambulance during an abortion; hemorrhage and slow dilatation; fetal limb presenting. Dilatation completed with Barnes' bag; fetus and

appendages removed with finger, and uterus douched with curette; packing of uterus and vagina with gauze. Beyond a brief rise of temperature from sapremia, patient's recovery uncomplicated.

CASE IX.—Young primipara; normal pelvis; suffering from polyhydramnios, with rapid increase in the amniotic fluid; general anasarca present, and abdominal pressure so great as to prevent sleep and cause great suffering; uterine distention excessive; os dilated, but uterine contractions absent. Rupture of the membranes, followed by slow delivery, with careful and prolonged counter-pressure upon the abdomen; excessive discharge of amniotic liquid, with feeble uterine contractions; after delivery, tamponing of the uterus and vagina with gauze, with the application of many-tailed abdominal bandage. Patient made an uninterrupted recovery.

CASE X.—Primipara; flat rachitic pelvis. Induced labor; symphyseotomy; extraction, with forceps, of living child; tamponing of uterus and vagina with gauze, which remained forty-eight hours. No post-partum hemorrhage, or relaxation of the uterus. Patient made a good recovery.

CASE XI.—Primipara; justo-minor pelvis of slight contraction; rupture of perineum in median line; suture; tamponing of uterus and vagina with gauze. Uninterrupted puerperal recovery.

CASE XII.—Multipara, who had lost her first child by birth-pressure from forceps extraction. Induction of labor at thirty-fourth week to avoid excessive size of fetus; artificial dilatation with McLean's bag; extraction with forceps; manual removal of the placenta; gauze packing of uterus and vagina; gauze removed in thirty-six hours. Uninterrupted puerperal recovery; child, a male, weighing nine pounds; diameter of head from one to two centimeters in excess of the average.

CASE XIII.—Multipara; seen in consultation with Dr. Thomas Betts and Dr. E. L. Klopp, of Oak Lane, Philadelphia; flattened pelvis; first child died of birth-pressure following forceps extraction; patient without a trained nurse, and with limited appliances for aseptic precautions; two attempts had been made to deliver with forceps. Anesthesia with ether; patient placed upon a table in Walcher's position; extraction of living child with axis-traction forceps; removal of the placenta; thorough douching of the uterus; closure of cervix and of slight tear in pelvic floor with silk; uterus packed with iodoform

gauze, and vagina with bichloride gauze. Dr. Betts removed the gauze forty-eight hours afterward, finding a few small, soft clots adherent to the gauze, and a serous discharge only; patient's highest temperature 100°; mother and child made good recovery.

While many of these cases have been delivered in the Jefferson Maternity with all the advantages of good nursing and abundant assistance, still Cases XIII and XIV illustrate the advantages of this method in private houses. In Case XIII, an excellent trained nurse and the writer's personal assistant were present; the patient had every advantage which thorough asepsis and abundant private resources could give. In Case XIV, the patient's limited means deprived her of many advantages in her own home, and her husband would not permit her to go to a hospital. It is in such cases, especially where it is difficult to maintain a thoroughly aseptic condition of the patient after delivery, that the employment of this procedure will be found especially advantageous. It is true that to be theoretically accurate, all samples of gauze should be tested by bacteriological examination before the operator introduces them within the uterus; this, however, is not practicable in most cases, and good results are obtained with the employment of strict cleanliness, thorough douching with dilute antiseptic solutions, and care that the gauze is conveyed directly from its case to the uterus of the patient, and is not opened or touched before its introduction. We have yet to observe any complication which we have been able to trace to this procedure.

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**ECTOPIC GESTATION: A REPORT OF OPERATIVE CASES; WHEN TO OPERATE; POINTS IN TECHNIQUE.**

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During the past few years much has been written on this subject. A review of the several methods of treatment shows that the mortality is lowest in those cases in which early operation is employed. In deciding on an operation for ectopic gestation the question arises, When and how shall we operate? I am of the opinion that if the diagnosis is made before rupture has occurred, operation should be made through abdominal incision as soon as arrangements can be made. With careful antiseptic and aseptic precautions, provided the operator is familiar with the

special anatomical conditions associated, an abdominal operation has in itself a mortality at or about *nil*.

We can never tell when rupture is going to take place; it may occur after our visit, perhaps not for a week, or after the lapse of months. We can guess as to the probable time of rupture, and that is the best we can do.

If we are called in after rupture has occurred, what is the best plan to follow? I would say operate as soon as possible. If the patient is collapsed, do not waste time waiting for reaction, for frequently, the hemorrhage continuing, reaction does not occur, and the patient is lost. When rupture occurs there should be no delay. The patient should not be removed from the house, but preparations should be made at once, and the operation performed under antiseptic and aseptic precautions as quickly as it can be done with accuracy. While the preparations are being made, if the patient's pulse is failing, hypodermics of digitalis, camphor, strychnine, etc., and intravenous or subcutaneous injections of sterilized salt solution at about 105° F., should be administered. We can only save the patient by arresting the hemorrhage, and the quickest and safest way is to cut down, clamp and tie the bleeding vessel. If the patient is under the care of a medical man no time should be wasted, but a surgeon should be called in to operate at once, so as to give the patient every chance for her life. We may use palliative, plastic and conservative methods in most conditions of the appendages, but we must be prompt, radical, and scientific in our operations for ectopic gestation.

In looking over my list of ectopic cases in which I performed or assisted in an operation while house surgeon at the New York Post-Graduate Medical School and Hospital, and since I left that institution, I find they number six. There was one other case not operated upon, the history of which I shall also include in my paper. Of these cases one was unruptured, six ruptured.

CASE I.—Unruptured; period of gestation, between two and three months. A three-inch median incision was made above the pubes, and the peritoneum was opened; the ovary and tubal mass were brought to the surface and removed; the pedicle was transfixed and tied off; abdomen was closed in separate layers with catgut sutures; silkworm-gut for the skin; no drainage. Recovery satisfactory.

**CASE II.**—Ruptured; near the third month of gestation. About three weeks previous to the operation there was a slight hemorrhage. Examination showed a moderately adherent mass, size of an orange, on one side of the uterus. A median incision four inches long was made above the pubes; on opening the peritoneum the mass was found moderately adherent in the pelvis; the adhesions were separated, ovary and tubal mass removed, pedicle transfixed and ligated, and abdomen closed without drainage. The tubal mass showed signs of the recent rupture. The peritoneum and fascia were sutured separately with catgut; interrupted silkworm-gut sutures were also used through all the structures of the abdominal wall except the peritoneum. Convalescence was delayed by an abscess which formed in the line of one of the worm-gut sutures; the abscess was incised. Otherwise recovery was satisfactory.

**CASE III.**—Period of gestation, between the second and third months; the rupture occurred on a Sunday morning. The patient was operated upon the afternoon of the same day. The abdomen was opened in the median line above the pubes by a four-inch incision; on opening the peritoneum the cavity was found to contain some large clots; the clots, ruptured tube and ovary were removed; the pedicle was transfixed and tied off; the abdomen flushed out with hot water; the peritoneum was closed with catgut, and the other layers were approximated by a single layer of interrupted worm-gut sutures. No drainage was used. There was some shock after the operation, but reaction was good. Wound healed by primary union; recovery uneventful.

**CASE IV.**—Period of gestation, about the third month; the rupture had occurred two days previous to entrance to the hospital. When admitted the patient was in a critical condition; pulse 135, temperature 102°; abdomen tympanic and markedly tender, especially the lower part, which was occupied by an ill-defined tumor mass; cervix enlarged and patulous; some bloody discharge; uterus enlarged about size of the second month of pregnancy. The mass could not be clearly defined by bimanual examination, but was traced downward into the pelvis. In one cornua of the uterus was an irregularly shaped mass, the size of a large orange. Operation was performed under ether. On opening the abdomen, the ill-defined mass was found to consist of large, partly organized blood-clots. The cavity also contained some blood-stained

serous fluid; there was evidence of peritonitis in the pelvis. The clots and serum were removed, adhesions separated, and the uterus and the mass in one uterine cornu were outlined; the ruptured ectopic mass was located at the tubo-uterine junction; the cornu was dilated, torn, and occupied by a portion of the mass about the size of an orange. The adhesions were separated, and the mass, including the ovary, was tied off close to the uterus and removed. The other tube was found enlarged and distended with fluid, and was also removed. The adhesions behind the uterus were separated and an incision made through the cul-de-sac into the vagina; abdomen was flushed out with hot water; iodoform gauze packing introduced into the pelvis from above, and the ends drawn down into the vagina. The abdominal incision was sutured in separate layers with catgut, using also interrupted worm-gut through all the layers of the abdominal wall except the peritoneum; no drainage was employed through abdominal wound; aristol dusted on wound and dressing applied. When patient was returned to bed, condition was poor; pulse 160. She was given stimulating enemata at two-hour intervals, and hypodermics of strychnine,  $\frac{1}{16}$  grain, and whiskey every hour for several doses. After vomiting ceased the patient was given one-half a Seidlitz powder in hot water every half-hour till four powders were taken. The vaginal drainage was good for several hours; the gauze was drawn down about every two hours; drainage was slight eight hours after the operation. Introduction of catheter into the bladder twelve hours after the operation showed but little urine. Vomiting set in; temperature gradually rose to 104°; abdomen became distended; kidneys stopped secreting; and the patient died. Temperature before death, 104½°.

Autopsy showed peritonitis and acute nephritis. This patient, I think, would have had a better chance for recovery if chloroform had been the anesthetic used instead of ether, and if the abdomen had also been drained from above through the lower angle of abdominal incision by two or three moist gauze wicks.

**CASE V.**—Rupture had occurred between the third and fourth months of gestation, and the fetal mass was discharging into the rectum. Operation was performed under ether. Patient was placed in the lithotomy position and the fetal mass, in a foul condition, was extracted piecemeal; the cavity was then washed out with hot salt solution, and a



gauze wick introduced for drainage. The cavity gradually filled up, and recovery was uneventful.

**CASE VI.**—The patient had a rupture when she was about two months pregnant, and made a good recovery. When she was admitted to the hospital the pregnancy was between the third and fourth months; patient's general condition was good. Examination showed the cervix slightly enlarged and patulous; on one side of the pelvis near the cornua was a large tumor mass, slightly adherent in the pelvis. The patient was to be operated upon the following morning before the class of Post-Graduate students. At 7.30 P.M. she was shaved and antiseptically prepared; about 9 P.M. I was called to see her. I hurried to the ward and found her pale and collapsed. Examination of the abdomen showed the lower portion tender to the touch; palpation elicited a boggy feeling. The patient was given hypodermics of morphine, strychnine, and digitalis, and preparations were made for operation. She began to vomit and died in a few minutes, before operation was performed.

The autopsy showed the abdomen to be nearly full of blood; there were evidences of the old and recent ruptures; the recent one had taken place into the peritoneal cavity; the tube was markedly enlarged and moderately adherent in the pelvis, and near to and attached by the cord to the ruptured tube was a fetus of about four months.

**CASE VII.**—Ruptured ectopic gestation, local peritonitis, hydrosalpinx. The patient was admitted to the hospital in a critical condition; she had considered herself between the third and fourth months of pregnancy. A week before entrance to the hospital abortion had been attempted; this produced pain and hemorrhage; for the latter vinegar was injected, and this increased the severity of the pain, which extended from the pelvis into the lower part of the abdomen. She suffered intense pain for three days previous to admission to the hospital.

Examination: General condition poor; pulse 140; temperature 102°; abdomen tympanitic and markedly tender, especially over lower half, on the right side of which an ill-defined tumor could be mapped out; the cervix was enlarged and patulous; the mass felt through abdomen could be traced downward into the cul-de-sac; on the left side, close to the uterine cornu, was an oval mass the size of a large orange.

Operation was performed as soon as the

operating room was ready; anesthetic, ether. Patient was shaved and antiseptically prepared. A median incision four inches long was made below the umbilicus, and the peritoneum opened. The mass felt through the abdomen consisted of large clots of blood, and the cavity contained some blood-stained serous fluid. The clots and serum were removed, adhesions separated, and the oval mass to the left of the uterus outlined. This consisted of fetus and membranes, together with matted tube and ovary; these were removed, the pedicle being tied off close to the uterus. Examination of the right tube and ovary showed a hydrosalpinx the size of a sausage; this was removed along with the ovary, which was the seat of extensive cystic disease. The serous coat of the intestines, which was torn in several places while separating adhesions and removing clots, was sutured with fine silk; the adhesions behind the uterus were separated as far as possible; the abdomen was flushed out with hot saline solution; iodoform gauze strips were packed into the cul-de-sac through the abdominal incision; an iodoform gauze strip was carried down behind the uterus, and the end brought out through the lower angle of abdominal incision; the abdomen was closed in separate layers with catgut, leaving only sufficient room at the lower angle for the gauze strip; aristol was dusted on wound and the dressing applied. Patient was then placed on her side; cervix seized with vulsella and drawn down; an incision made behind the cervix into the cul-de-sac, and the ends of the iodoform gauze packing drawn down into the vagina. Patient was returned to the ward; condition poor; pulse 160. She was given stimulating enemata twice at two-hour intervals, and hypodermics of strychnine  $\frac{1}{10}$  grain, caffeine 2 grains, and camphor 3 grains, every hour for four doses. Pulse at the end of four hours became fairly good. One hour after vomiting ceased, was given one Seidlitz powder in hot water every hour till four were taken. At the end of six hours she was given an enema of olive oil 4 ounces, Rochelle salts 4 ounces, enema  $1\frac{1}{2}$  pints. Bowels moved slightly eight hours after the operation. Highest temperature, 101 $\frac{1}{2}$ °. At the end of twelve hours patient had a severe chill; temperature rapidly rose to 106°; pulse 180. Drainage had been excellent for six hours after the operation from the abdominal wound, but poor through the vagina, on account of density of pelvic adhesions. Gauze on abdomen had been changed

as often as it was saturated—*i.e.*, about every hour and a half; the gauze through the cul-de-sac was drawn down about every two hours. Drainage was slight from the sixth hour after the operation up to the time the temperature began to rise, when the dressing on abdomen was removed, and wound was opened at the lower angle for about two inches; a soft rubber catheter was passed down into pelvis and about half an ounce of blood-stained fluid was withdrawn with a syringe. Another strip of gauze was introduced to the bottom of the wound and moist dressings reapplied. The patient was given one hypodermic Majendie solution of ten minims, and an enema twice of whiskey 4 ounces, quinine 20 grains, at two-hour intervals. In four hours the temperature dropped to 103°, and inside of two days was normal. While the patient was very weak, she was given an ounce of champagne every hour by the mouth; for two days after the operation she was given nutrient enemata of peptonized milk  $\frac{1}{2}$  pint, two eggs, and salt 2 drachms, every four hours, till the stomach could tolerate milk and Vichy in small quantities. On the seventh day she was ordered regular diet. The gauze in the cul-de-sac was removed twelve hours after the operation, and the abdominal drains on the third day, when a small strip was introduced. The wound filled up rapidly; cicatrization was complete six weeks after the operation. General condition good on the last report.

*Some Points in Technique.*—The abdominal incision need not be made longer than three inches, and after opening the peritoneum, if it be found necessary to enlarge the incision on account of extensive adhesions or the size of the mass, this can easily be done. Less time is taken and less injury is done by operating through a short incision, and later on the opening can be closed in less time and with fewer manipulations. In difficult cases the Trendelenburg position should be used, as it offers many advantages. If adhesions are present separate them by blunt dissection, aided at times when they are firm by cuts with the scalpel. Adhesions, unless they are very old and firm, always give way before the normal structures. When the adhesions to the intestines are old and firm they should be cut so as to leave a piece attached to the bowel; should the intestines be torn, grasp them at once, and close the rent or rents with two layers of continuous sero-muscular fine silk sutures. Bleeding from adhesions is best arrested by irrigation with hot water

and pressure with hot gauze sponges. To prevent secondary adhesions all raw surfaces where it is possible should be whipped over by fine continuous catgut sutures. When sutures cannot be used secondary adhesion can be prevented by means of an aristol film, which acts mechanically and gives the raw surfaces an opportunity to heal separately. The aristol film will not form on the surfaces if any fluid washes away the aristol before it becomes fixed with the lymph; in from half a minute to a minute the film can be formed on a dried surface by exposure to the air. The ectopic mass should be removed by enucleation, using blunt dissection aided at times by cuts from the scalpel. The dissection should be carried as close as possible to the tubal mass; beginning the enucleation at the fimbriated extremity, work toward the uterine end of the tube. When the uterine cornu is reached, the serosa of the tube about a quarter of an inch from the tubo-uterine junction is divided in a circle and dissected back to the uterus; the tube is then cut off flush with the uterus, and the cut edges of serous coat which had been dissected back are united with a continuous catgut suture. If the ovary is irreparably damaged it is also removed by enucleation, using blunt dissection, aided at times by cuts with the scalpel; oozing is arrested by sponge-pressure. If any vessels are severed during the enucleation they are caught at once with forceps and ligated with fine catgut.

After the removal of appendage the cut edges of the broad ligament should be united with a fine continuous catgut suture. The tube and ovary of the other side should be examined, and if the ovary is cystic the latter should be evacuated, trimmed away, and the cut edges united with continuous catgut sutures. If the tube or ovary, or both, are irreparably damaged they should be removed by enucleation as described. If the uterus is in good position and not irreparably damaged, it should not be removed.

In those cases where the fetus has escaped from the tube or is not in the tube, the treatment should be the thorough removal of the fetus, placenta and membranes as soon as the diagnosis is made, no matter what the stage of the disease, removing the masses by enucleation, ligating only bleeding vessels, and arresting oozing by sponge-pressure and irrigation with hot water. If drainage is necessitated, one or more strips of moist gauze, surrounded by gutta-percha tissue with several holes snipped in the tissue

(Morris' capillary wick) answers best; the rubber tissue prevents the formation of adhesions between the serosa and the gauze. In an earlier paper on Appendicitis I reported fourteen cases in which Morris' capillary wick was used with every advantage where drainage was necessitated. In closing the wound each of the layers should be sutured separately and thus accurately with chromicized catgut or tendon sutures, using very fine silk for the skin; and if each of the divided layers is sutured separately with sterilized chromicized tendon or catgut, there would never be a post-operative hernia.

I advocate the removal of all such masses as ovarian cysts, tumors, abscesses, irreparably damaged tubes—e.g., pus-tubes, tubes the seat of gestation, etc.—by enucleation, with ligation of vessels only as I have described in my paper, as the simplest, safest and most scientific method of dealing with such masses. I have removed successfully ovarian tumors, cysts, tubo-ovarian abscesses, adherent ovaries and tubes by enucleation, ligating only the bleeding vessels with catgut. In two instances I removed an adherent ovarian cyst and tube, and an extensively adherent tubo-ovarian abscess, by enucleation without applying a ligature; no vessel was ligated or clamped, as there was no bleeding.

From a study of the cases cited, and comparison of the methods used by various physicians and surgeons, I can only draw the following conclusions:

1. That ectopic gestation is strictly a surgical disease.
2. That an ectopic mass should be removed by abdominal section as soon as the diagnosis is made, no matter what the stage of the disease.
3. That with careful antiseptic and aseptic precautions, provided the operator is familiar with the special anatomical conditions associated, an operation for ectopic gestation has a mortality at or about *nil*, or less than that associated with the condition previous to operation.
4. That an ectopic mass should be removed by enucleation, with ligation of vessels only, using absorbable ligatures; the pedicle should not be transfixed or tied off in sections, but should be cut across, and only the individual vessels ligated. This does away with mass, non-absorbable and dead ligatures, sloughing and painful stumps, pelvic exudates, the cautery, and wandering ligatures, etc.
5. That enucleation is the safest, simplest and most scientific method of removing an

ectopic mass, etc.; there is no danger of hemorrhage; if a vessel is severed, it can be caught at once and ligated.

6. That with enucleation there is less danger of injuring adjacent viscera; recovery is rapid, and the danger of sepsis is reduced to the minimum.

7. That when a Fallopian tube is removed, the operation should be complete; no stump should be left. When the serosa of the tube at the tubo-uterine junction is not totally destroyed, it should be divided in a circle about a quarter of an inch from the uterine cornua, dissected back to the uterus, and the cut edges, after cutting off the tube flush with the uterus, united by a continuous catgut suture.

8. That in removing an appendage, etc., by enucleation, the cut edges of the broad ligament should be united with a continuous absorbable suture.

9. That even when both appendages are removed, a uterus that is in good position and not irreparably diseased should not be removed.

10. That if there is local or general infection the cavity or cavities should be freely flushed with hot saline solution.

11. That if drainage is necessitated, one or more Morris' capillary gauze wicks should be used instead of iodoform or other gauze packing, glass, or other stiff tubes.

12. That to prevent hernia the incision should be small, using, if drainage is necessitated, capillary wicks, and the wound be closed layer by layer separately, and thus accurately, with sterilized chromicized tendon or chromicized catgut.

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*THE TECHNIQUE OF PROFESSOR KEEN'S  
SURGICAL CLINIC IN THE JEFFERSON  
MEDICAL COLLEGE HOSPITAL.*

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While the achievement of satisfactory results in surgery does not depend alone on a refinement of operative technique which is as perfect as modern science can make it, and while it is recognized that sound judgment and thorough operative ability are most important requisites to him who expects to deal successfully with surgical maladies, yet the strict attention to detail in the care of the patient, in the cycle of his existence in the hospital, prior to, during, and after operation, must bear much weight in attaining that end which is always uppermost in the surgeon's mind—the ultimate cure of the patient. The technique which is followed in a large hospital clinic where every opportunity is offered to try the various methods advanced from time to time, to discard the faulty ones, and retain those which have stood the test of rigid and most careful examination, must be of interest to the physician engaged in surgical work, but who is not in a position to make extensive personal investigations to find out what methods are absolutely reliable.

The methods employed by Dr. Keen in the Surgical Clinic of the Jefferson Hospital, which represents one of the largest surgical clinics in the United States, are set forth in detail under the following several headings: First, the operating arena and paraphernalia at hand; second, the materials needed for each operation; third, the preparatory care of the patient; fourth, the surgeon and his assistants; fifth, the operation; sixth, the after-treatment of the patient.

The *operating arena* of the clinical amphitheatre, which is a building separate from the hospital wards, is so arranged as to be in the centre of a series of seats raised in tiers. This affords to the students on the benches a good view of the operation. Wainscoting of glazed tile, 1.5 meters in height, separates the rows of benches from the arena, which is laid with a hard, non-porous, mosaic stone floor, sloping to an air-tight drain. The floor and tile work are thoroughly scrubbed with hot water before and after each operation and mopped with a solution of bichloride of mercury 1:1000, and the floor of the amphitheatre is sprinkled with the same solution. This proceeding is made necessary by the

constant moving about of assistants and the coming and going of the large body of students. More or less dust is whirled into the atmosphere, and this repeated mopping and sprinkling is done to limit as far as possible the impregnation of the atmosphere with germs, and to prevent the wound from becoming infected from germ-laden dust coming in contact with it, the dust in the air offering the only danger. The room is lighted by an overhead skylight, a provision found necessary to obtain the greatest amount of light on the field of operation. For operations performed after sundown the necessary illumination is obtained from a drop-light of thirty-six flames suspended over the operating table, and if it is desired to have light nearer the wound, a nurse holds a portable incandescent light, which is always in readiness, in the most advantageous way and so as not to interfere with the movements of the surgeon. In brain cases at night Dr. Keen usually finds it more convenient to use an electric headlight on account of the small field of operation and to avoid crowding of assistants.

In the middle of the arena stands the operating table devised by Boldt, made of an iron frame, enameled in white, with portable plate-glass top. The simplicity of mechanism of this table is of note, as the head-rest and foot-end can be lowered, and the patient can be placed in the Trendelenburg posture at a moment's notice. On the sides of the arena are the smaller tables, two on each side, for instruments, etc., being made also of enameled iron frames and glass tops which can be lifted. These tables are scrubbed carefully with soap and water, then with a corrosive solution, and at the time of operation covered with bichloride sheets, the preparation of which will be described hereafter. At one end of the arena are two upright copper and brass boilers, of the Sprague-Schuyler pattern, each holding 115 litres, in one of which is boiling hot water and in the other water which has been boiled and cooled. The water in both has been heated to 116° C. Adjoining these is a Schimmelbusch sterilizer for boiling instruments, which apparatus has the advantage of hermetic occlusion by the cover and keeps the temperature of the boiling water equal at every point. This and the boilers are mounted on frames of the same material as the tables. Opposite the sterilizing apparatus is a large marble sink with taps of running water, hot and cold, where frequent ablutions of the hands and forearms are taken without the

use of basins, and on a glass shelf above the sink are glass jars of antiseptic solutions containing brushes, jars containing a solution of Johnston's ethereal soap—which is a solution of Castile soap in ether, and having added for coloring and germicidal properties a small percentage of pyoktanin—blunt-pointed orangewood sticks for cleansing nails, and a sterilized bowl containing alcohol. Alongside the marble sink is a large deep pan on an iron frame, all enameled, containing at the time of operation bichloride-of-mercury solution 1:1000 for disinfecting the hands and forearms. A covered metal vessel receives the soiled dressings, sponges, etc., which are removed from the room immediately after each operation. The plumbing of the sink and drain is frequently inspected and they are kept in perfect order. For the accommodation of visiting surgeons there are several chairs painted in white enamel in order to facilitate cleansing. At the other end of the arena is a small table which is covered with a sterilized sheet at the time of operation, on which are placed the necessary paraphernalia for the anesthetist's use—an Allis inhaler wrapped in a sterilized towel, an Esmarch chloroform inhaler, jaw forceps, mouth gag, tongue forceps, a bottle graduated in centimeters and containing Squibb's ether, a smaller one, also graduated, containing chloroform; hypodermic syringes ready for use, a faradic battery, and an apparatus for administering oxygen by inhalation.

Before each clinic the clinic nurse and her two assistants see that the arena is placed in order. Floor, tables, etc., are cleansed as above stated, and from the adjoining room is wheeled a rolling table on which are jars for dressings, sheets, towels, sponges, etc., which have previously been prepared in a room set apart for this purpose; the table also contains instruments on metal racks which have been taken from a glass instrument-closet in an adjoining room. These jars, etc., are placed in their regular places on the glass-top tables.

In the preparation of this material the strictest asepsis and antisepsis are observed, and the transaction is entrusted only to a nurse who has received sufficient training in this special work and who understands every detail in the preparation, which includes iodoform gauze, gauze pads, dressings and sponges, ligatures and sutures, towels and sheets, gowns, brushes, drainage tubes, rubber protective and receptacles for the various solutions. All the pads, dressings, sponges,

drainage tubes, etc., are kept in glass jars covered with glass lids, which are made sterile by scrubbing with ethereal soap and water, scalding and filling them to the brim with mercuric chloride solution 1:1000, and allowing them to stand thus over night. In the morning this solution is poured off and the jars are ready for use. This sterilization is repeated each time the jar is emptied of its contents, which may be in a day or at the end of several days, so that there are always some jars in the process of sterilization.

*Gauze* is the most valuable of all dressings for wounds, and in its preparation that variety is selected which has the greatest absorbent power. The gauze as it comes from the shops is first boiled in a solution of carbonate of soda, rinsed out, and dried; it is cut into sections of half a meter square of four thicknesses, folded into dressings, and half a hundred of these wrapped in a sheet and placed in the sterilizer under pressure for half an hour, the temperature being raised to 116° C., at the end of which time they are removed with disinfected hands and placed in a sterilized jar. These are known as sterilized dressings. Gauze sponges are made by taking pieces of gauze one-third of a meter square, rolling each piece loosely in the form of a ball, twisting the free end and tucking it in, and sterilizing as in the case of the dressings. These are kept in a separate jar. Marine sponges are never used, on account of the uncertainty of making them perfectly sterile, and the great risk of infecting wounds.

In the preparation of bichloride gauze dressings the gauze, after the initial boiling in soda solution, is soaked for twenty-four hours in bichloride of mercury solution 1:1000, wrung out, wrapped in a bichloride sheet and hung in the drying room. When dry it is spread out on the sheet, cut into pieces half a meter square, folded into dressings of four thicknesses each, and these put into a sterilized jar.

Probably the most tedious to prepare of all the gauze material is *iodoform gauze*, and after experimenting with numerous formulæ in its manufacture for a number of years, the present method was evolved, and the gauze is everything that could be desired and is absolutely sterile, with the iodoform evenly distributed in the meshes.

Ten pounds (3732 Gm.) of gauze is unwound from a roll, and having been boiled in a soda solution is cut into two-meter lengths and steeped for a period of twenty-four hours

in corrosive sublimate solution 1:1000, contained in a large stone crock. At the end of this steeping the future handling of the gauze must be done with the strictest regard for antiseptics. Before removing it from the crock the nurse sees that her finger-nails are scrupulously clean, scrubs her hands and forearms energetically with soap and water, and bathes them in alcohol; this is followed by a vigorous use of the nail-brush and bichloride solution, and she dons a sterilized operating gown. As much care is used in hand disinfection in the preparation of gauze as for the operation. A sterilized sheet is spread out on a table upon which are placed two sterilized bowls, into one of which an assistant pours three pints (1.41 liters) of absolute alcohol and into the other adds the ingredients for the emulsion—three pounds (1119.72 Gm.) of glycerin and one pound (373.24 Gm.) of iodoform which has been made sterile by dry heat—the necessary quantities for making up ten pounds of gauze. The nurse mixes the iodoform and glycerin by stirring with the hand, and adds the emulsion formed to the bowl of alcohol. The gauze is lifted from the crock, wrung out, and each of the two-meter lengths of gauze stirred in this mixture with the hands for one minute, and wrung out. The iodoform will have infiltrated itself into the meshes of the gauze, and this process is supplemented by rubbing the gauze for several minutes between the hands after it is wrung out of the mixture. It is folded lengthwise into narrow strips, rolled up like a bandage and each piece put into a small covered glass jar that has been made sterile. Each jar contains a single roll, and the gauze is laid in it in such a way that when the free end is drawn upon the gauze will unroll.

*Towels and sheets* are washed in warm water with oleine soap and are given numerous rinsings until all evidences of blood-stains are removed. After drying, parcels of two dozen towels each, wrapped in a small sheet, are placed in the sterilizer, remaining there for half an hour, the temperature of 116° C. being maintained. They are kept on hand in sterilized glass jars.

*Gauze pads* for abdominal operations are made as suggested by Ashton, of eight thicknesses of washed gauze nine inches square (22.9 cm.), with the edges tucked in and hemmed so as to prevent fraying; ten of these are wrapped in a towel and sterilized for half an hour in live steam under pressure; they are then put in a jar containing

three-per-cent. carbolic acid solution. When needed for operation, if time permits they are boiled in water for twenty minutes and allowed to stand in boiled water in a pan. In emergency cases they are given several rinsings in boiling water and kept in hot distilled water at the time of operation.

*Rubber protective* is used as a covering for dressings on a wound that discharges freely, in order to distribute the discharges throughout the dressings and to prevent infection from the air. It is washed in soap and water, scalded in hot water and kept in a jar containing three-per-cent. carbolic acid solution.

Although the object is to dispense with drainage, certain suppurating wounds, and very large wounds, make it desirable to use a *tubular drain*. These drains are made of soft india-rubber tubing and are used almost exclusively where a tubular drain is indicated; strands of silkworm-gut and iodoform gauze being used where smaller and capillary drains are needed. The tubing is washed in soap and water, cut into lengths, has holes cut in the sides, is rinsed and scalded and kept in a three-per-cent. carbolic solution, as bichloride of mercury will form chemical combinations with the rubber.

*Wet gauze bandages* are used to take a few turns over the dressing to hold it in place before applying the outer cotton bandage. Gauze is cut into strips eight yards (731.2 cm.) long and five inches (12.7 cm.) wide and sterilized. These strips are wound, after sterilization, on round wooden sticks five inches (12.7 cm.) long, after boiling them for one hour. The bandages thus rolled are kept in a 1:1000 bichloride solution in a glass jar.

Where abundant discharge is expected from wounds—as in an extensive dissection for removal of advanced carcinoma of the breast, or in general peritonitis in which, for example, bilateral drainage may be used—the primary gauze dressing next to the wound is supplemented by a large pad of *wood wool* of a size large enough to entirely cover the gauze. These pads are made by encasing a layer of wood wool one and a half feet (45.7 cm.) long, one foot (30. cm.) wide, and two inches (5. cm.) thick, with a single thickness of gauze to prevent the wood wool from separating. These pads are wrapped in small sheets and sterilized for one hour. They are folded and kept in covered sterilized jars. Absorbent cotton is required occasionally in dressing cases and is sterilized for half an hour in the sterilizer and kept in sterile jars. Gauze, however, has

supplanted its use to such an extent that it is seldom used except in fracture dressings.

Small *hand-brushes* made of hog-bristles mounted on wooden backs are the best instruments with which to accomplish mechanical cleansing of hands, instruments, and operative area. The substitutes that have been suggested and tried, as cotton, lamb's wool, excelsior, etc., have not proved entirely satisfactory. The utmost care is required in the cleansing of brushes lest they prove efficient carriers of infection. They are scalded in boiling water, and those for soap and water use are kept each in a small jar containing saturated solution of boric acid; and those for scrubbing with bichloride solution are kept in a jar containing this solution in 1:1000 strength. Two separate brushes are reserved for the patient, one for soap and water, the other for bichloride solution, and kept in the same way. All brushes used for mechanical cleansing from dirt after examination of the rectum, cancer of the uterus, etc., have *black* bristles, while the brushes used for scrubbing with bichloride solutions are made of *white* bristles. By this means no interchange of the brushes can be made. Brushes used in purulent wounds are destroyed after operation.

The preparation of *animal ligatures* has been a matter of most careful investigation for many years. All other material has finally been discarded in favor of catgut, which is undoubtedly the ideal ligature, but the manner in which it could be rendered absolutely sterile and still retain the peculiar properties required of it has been a bone of contention. Different methods have been followed in past years in its preparation, among them methods of Fowler and Leavens, by which catgut is kept in alcohol in sealed tubes; the preparation by formalin recently proposed by Senn; cumol catgut, etc.—all of which have finally been abandoned as unsatisfactory, in that the apparatus needed is expensive and troublesome, considerable time is consumed in the preparation, and the gut is less efficient as to strength and durability.

Mr. Johnston, of Jefferson Hospital, devised the method of preparation of catgut which has since been used and which has proved eminently satisfactory. Raw catgut, from the submucous coat of sheep's intestines, as obtained from the shops, is steeped in absolute ether entirely purified from sulphuric acid, to remove the fat,—light gut remaining twenty-four hours in the ether and the heavier gut forty-eight hours. When it

has been steeped a sufficient length of time in the ether the gut is transferred directly into a corrosive sublimate solution, consisting of mercuric chloride 40 grains (2.6 Gm.), tartaric acid 200 grains (12.96 Gm.), and alcohol 12 ounces (354.88 Cc.). The lightest weight gut should not remain in the corrosive mixture longer than from five to ten minutes, the next size from ten to fifteen minutes, and the largest sizes from twenty to twenty-five minutes. While the gut is being steeped and before it is transferred from the ether to the corrosive mixture, jars for keeping it ready for use are prepared by thoroughly scalding, filling them with an aqueous corrosive-sublimate solution 1:1000, allowing them to stand thus filled until the following day. This solution is then emptied and the jars nearly filled with alcohol (95 per cent. strength) and containing palladium bichloride in the proportion of  $\frac{1}{16}$  of a grain (0.0040 Gm.)—i.e., two drops of a palladium bichloride solution containing 15 grains (0.972 Gm.) of the salt to the ounce—to a pint of alcohol. By experiment it has been shown that more of the true bichloride of palladium will not stay in solution in alcohol, and when a precipitate occurs through excess of the palladium the whole goes to the bottom and is not again soluble in alcohol. The gut being lifted with an aseptic tenaculum from the bichloride mixture, is dropped into the prepared jars of palladium-alcohol and is ready for use. Catgut thus prepared is strong, pliable, and smooth, and keeps indefinitely as far as yet known. Careful laboratory experimentation by Dr. Coplin and Dr. Harris, and extensive clinical observation, prove the fact that it is sterile. When an operation is about to be performed the outside of the jar is rinsed with hot bichloride solution 1:1000, the glass stopper removed, and the mouth of the jar well wiped with the solution. The quantity of gut judged necessary for the operation is lifted from the jar by means of a sterilized tenaculum, and dropped into a dish previously sterilized and containing sufficient alcohol to cover the gut. If more gut is removed from the jar than is necessary for the operation the quantity left is immersed in the mercuric chloride solution for five minutes and transferred to the stock jar. This precaution gives absolute safety against infection.

When it is desirable to have ligatures or buried sutures remain intact for a longer time than it usually takes for them to be absorbed—the limit of this time being usually from five to six days—the gut is made more

durable by chromicizing it. It is steeped in absolute ether as before for twenty-four hours. Commercial ether contains a trace of sulphuric acid which ultimately softens and rots the gut, so it is not used. The gut is transferred to the corrosive-sublimate solution from five to thirty minutes, according to its thickness; it is then washed in pure alcohol to remove any deposit of bichloride of mercury, and transferred to a solution made by adding half a pint of absolute alcohol to an equal amount of sterile water in which has been dissolved five grains (0.324 Gm.) of bichromate of potassium. The gut remains in this solution eighteen hours, is rinsed off in alcohol, and dropped into a sterilized jar containing pure alcohol, in which has been dissolved one-sixteenth of a grain (0.0040 Gm.) of bichloride of palladium to the pint. This gut will last from fifteen to twenty-five days.

*Kangaroo tendon* is used in preference to catgut in certain cases, as in an operation for the radical cure of hernia where the several muscular layers are sutured to Poupart's ligament after the method of Bassini or Halsted. The tendon is here used on account of its greater permanence, as it is not absorbed for two or three months. The raw tendon having been soaked in absolute ether for forty-eight hours, is boiled at a temperature of 100° C. in alcohol for one hour. This temperature is maintained by means of a water-bath. It is then put in the mercuric chloride solution mentioned in the preparation of catgut for ten minutes, and kept in sterilized glass-stoppered jars containing bichloride of palladium one-sixteenth of a grain (0.0040 Gm.) to the pint of absolute alcohol. Pieces of the tendon thus prepared, placed on sterilized agar and gelatin and immersed in bouillon, have yielded no growth after numerous experiments by Dr. Coplin.

For suturing, silk, silkworm-gut, and silver wire are used. Silver wire is used principally in suturing bone in fractures and as a subcuticular stitch where stitch-hole scars are to be avoided. It is boiled with the instruments.

*Silk* of various sizes, received in skeins, is wound on glass spools, and several spools put in a test-tube which is plugged with cotton. The fractional method of sterilization is used when there is no urgent demand for the silk. The tubes are plugged with cotton and are placed in the sterilizer, a temperature of 100° C. being maintained for one hour each day for three successive days. At this

temperature on the first day all adult bacteria with which the surgeon has to deal are killed; on the second day the spores, and those spores which may have developed into full-grown bacteria, are destroyed; and on the third day any spores which may finally remain are sure to be destroyed. When, however, there is not sufficient time to follow this method the tubes are placed in the autoclave, which is a steam boiler in which the steam is locked up tight, so that a high temperature can be reached; it is kept in this for thirty minutes after the mercury has reached 116° C., and on removal is kept in the tube until needed, when the cotton plug is removed and the spools are dropped in a sterilized dish containing absolute alcohol.

*Silkworm-gut* is used generally in closing wounds with interrupted sutures. It is received in strands each one foot long; these are scrubbed with a brush and soap, rinsed several times in water and in alcohol, and immersed in bichloride solution 1:1000 over night. They are kept in absolute alcohol in a sterile glass-stoppered jar.

Cotton roller bandages are kept in a separate jar and sterilized by steam in the sterilizer; four different widths are used, from one to four inches (2.5 cm. to 10.2 cm.) each, eight yards (7.3 meters) in length.

In bone operations a small jar of Horsley's *wax* is always at hand, and its applicability is nowhere better indicated than in the oozing, sawn end of bone in amputations, the hemorrhage from which is controlled immediately it is applied; its value as an agent in controlling hemorrhage cannot be overestimated. It is made of seven parts of beeswax to one part each of almond oil and salicylic acid.

*Iodoform collodion* is used to seal small superficial wounds where it is possible or desirable to dispense with elaborate dressings, as after removal of a small sebaceous cyst from the face. A few thicknesses of sterilized gauze sufficiently large to cover the sutures are laid over the wound and painted with collodion, which acts as a thorough protective against atmospheric influences.

But one dusting powder is used in the clinic—*iodoform*—and that very rarely. It is sterilized by heat, and is not used as an active disinfecting agent, but as a drying powder in rare instances, where it will aid in absorbing secretions from a large granulating surface. Should infection occur it renders ptomaines harmless by forming innocuous combination with them, as shown by de Ruyter and Behring. Its use, however, is



limited almost entirely to tubercular cases, as it exerts such a decided antitubercular influence. The improvement noticed in these cases under its use is second only to the action of mercury in syphilis.

The various *antiseptic solutions* that are made for each clinic, and kept in large flasks, are solutions of mercuric chloride, carbolic acid, and boric acid. Mercuric-chloride solution is made by adding two drachms (7.39 Gm.) of the salt to a gallon of distilled water, as in other water the earthy substances combine with the mercury. This makes a strength of 1:500, and by adding hot water in equal amount to the solution at the time of operation it makes the standard solution of 1:1000. In order to distinguish it from other solutions it is colored red by adding a drop of a saturated alcoholic solution of eosin to a pint of the mercurial solution. A five-per-cent. carbolic-acid solution is known at a glance by its blue color, a drop of a saturated aqueous solution of pyoktānin giving it this color; this solution is also diluted one-half when used. Boric acid is kept in saturated solution and diluted to any strength desired when needed. Solution of sodium chloride, or normal salt solution, is made by dissolving six grammes of table salt in a liter of pure water, which is filtered through druggists' filter-paper into flasks; these flasks are plugged with cotton and sterilized by heating to a temperature of 116° C. for half an hour. It is used principally in irrigation in cavities, for hypodermoclysis and enteroclysis, and for intravenous injection in cases of shock or great loss of blood. For hypodermoclysis and intravenous injection the apparatus of Collin (see American Year-book of Medicine and Surgery, 1897, page 224) is used very advantageously; and for enteroclysis a rectal tube and fountain syringe are always at hand. There are also in readiness a Paquelin cautery adjusted for immediate handling, an aspirating apparatus, and tracheal tubes; splints, etc., and an outfit for bacteriological examination are kept in the adjoining room with the instruments.

*The Preparation of the Patient.*—The object of this is twofold: first, to put him in better physical health and raise the general tone of his system, thus increasing his tissue resistance to the invasion of infectious organisms; and second, by a series of local cleansings, in which the mechanical means is of the highest importance, to render surgically clean the area to be operated upon. It will depend upon the exigencies of the case whether the

period of preparation shall be a single day or can be extended several days, the latter being by all means preferable if the case be one of gravity and there be no special urgency. Especially will it be desirable to lengthen this treatment if the patient is suffering from any chronic organic disease in conjunction with his surgical ailment, allied conditions being not infrequently met with; and it is a matter of some gravity in certain cases to decide whether any operation is justifiable or not. As a rule in organic cardiac disease the valvular lesion does not contraindicate operation, and even the gravest of operations may be performed without any untoward results. In such cases the utmost care is taken in administering the ether, which is given in a minimum amount necessary to induce anesthesia, and the operation is done speedily—never, however, hastily. If there be serious advanced organic disease of the kidneys, an elective operation is withheld. If, however, surgical interference is necessary to save life—as in amputation for gangrenous extremities, a vesical calculus which is causing much mischief, or a cervical tumor which is encroaching upon the trachea—operation is performed with the aid of chloroform in spite of the nephritis. Chloroform anesthesia is used in these cases, as the weight of professional opinion leans in favor of it, and as shown in the tabulated list of anesthesia cases summed up by Dr. Da Costa.

The patient is given a hot tub-bath on admission, is furnished with fresh laundered underlinen and nightshirt, and put to bed. Confinement to bed prior to operation accustoms him to his unnatural experience, relieves him of the constipation and sleeplessness which always follow this change, quiets his heart and lungs, and keeps him in an equable temperature. If he be an excessive user of alcohol, stimulants are cut down to a safe dose; if he be a moderate user of spirits, however, the alcohol is cut off entirely. A saline is administered at once and repeated until the bowels are completely unloaded. Some time during the first day the resident surgeon takes a full history of the case, comprising in detail the family history, with especial inquiry as to any hereditary taint, the past history, and the history of the present illness, with a minute examination and description of the condition of special organs. The family history will aid in arriving at a definite conclusion as to the influence of heredity; the past history will disclose the patient's prior illnesses and his probable lia-

bility to infection; the history of the present trouble will give a detailed account of the cause, onset and development of the disease for which the patient has sought relief. The examination of special organs, heart, lungs, liver and kidneys will give the operator exact information as to the patient's general condition, and this is taken well into account and will have much weight in deciding as to what extent operation is feasible. Any unusual phenomenon, mental or physical, is noted in the history report under Remarks.

On the first day a careful examination of the urine is made by the anesthetist in person; this covers a reaction test with litmus, the specific gravity, a test for albumen and sugar. In testing for albumen, the acetic-acid test is used, which is made by pouring into a small test-tube half a drachm (1.8 Gm.) of a solution of equal parts of acetic acid and water, which solution is always kept on hand, and dropping into the tube a crystal of ferrocyanide of potassium, shaking it until the crystal is dissolved. The urine is then allowed to trickle down the side of the tube, and at the point of junction, if there be a trace of albumen, a white line will appear. If any albumen is found the amount of urine voided during the next twenty-four hours is collected, and a small quantity boiled and tested for the amount of urea present by the Doremus apparatus.

In testing for sugar Haines' solution is employed, which consists of a mixture of cupric sulphate 30 grains (1.848 Gm.), distilled water  $\frac{1}{2}$  ounce (14.79 Cc.), glycerin  $\frac{1}{2}$  ounce (14.79 Cc.), and liquor potassii 5 ounces (147.8 Cc.). One drachm (3.70 Cc.) of this solution is boiled gently, six drops (0.37 Cc.) of urine added, and if any sugar is present a yellowish-red precipitate will be deposited in the bottom of the tube.

A microscopic examination for blood or pus corpuscles, tube casts and crystalline or other deposits completes the urinary examination. Hemorrhage from the urinary tract will demand further investigation. A moderate number of hyaline casts will not be of any weighty significance or have any serious bearing against operation.

During the several days preceding operation the patient is kept under rigid ward discipline and a strict regimen and confined to his bed. On the first night the imaginative horrors of hospital life usually present themselves with unusual force, which keeps him wakeful and restless, so he is given fifteen grains (0.97 Gm.) of trional if necessary in

hot beef-tea, before the lights are turned low. The sound sleep which this potion induces has a beneficial effect upon the patient's nervous system, which is noticeable the following morning, when he will be found more cheerful and full of courage. If a tonic is necessary he is given two grains (0.13 Gm.) quinine sulphate and  $\frac{1}{10}$  grain (0.0022 Gm.) strychnine sulphate at regular intervals of four hours each or longer, and he is kept on light, easily digestible, nutritious food. The hot bath, which is a prominent factor in gaining excellent results in surgery, is repeated daily to stimulate proper skin action, and gentle massage produces a more active circulation, supplying to muscles exercise which requires no effort upon the part of the patient and is an excellent adjunct to the preliminary treatment which aims to improve his general condition. The application of these manipulations to the abdomen also increases peristalsis and induces a daily evacuation of the bowels—which it is extremely important should occur, for patients in whom the bowels are unloaded are less liable to infection—and the number of movements is recorded on a temperature chart, together with the quantity of urine secreted in each twenty-four hours. The morning and evening temperature is recorded on a Wilson chart, with the pulse-rate and the number of respirations per minute, so that the surgeon on making his daily rounds can infer on glancing over the chart what is the condition of the patient and whether there is any change from the record of previous days.

Up to this time the treatment has been only constitutional and moral. On the day before the operation attention is more especially directed to the local trouble for which the patient has sought relief. A series of local cleansings by mechanical rubbings and chemical disinfectants is now instituted, with the object of making the area surrounding the part to be incised or excised, an aseptic field. This disinfection is done twenty-four hours before operation by the head nurse of the ward and her assistant, or by the orderly and his assistant if it be a male screen case. These nurses have been thoroughly schooled in the methods and objects of asepsis and antisepsis, by the Resident and the Directress of the training school. Screens are thrown around the patient's bed, and the part to be operated on is exposed and surrounded by clean towels. The operative area is lathered with soap and brush, the soap is well rubbed into the skin with the hand, the hair cover-

ing it removed with a razor and the part rinsed off with distilled water as hot as the patient can bear it. A hot moist towel is laid over the part temporarily, while material is furnished for the further disinfection. From now on until the patient's final discharge from the hospital the strictest antiseptics is observed with all objects that come in contact with the operative field. The nurse scrubs her forearms and hands, paying special attention to her finger-nails, with soap and water and with alcohol, while her assistant wheels the small ward carriage in which are bottles of solution and jars containing dressings to the bedside, and pours out into two separate sterilized bowls a solution of bichloride of mercury 1:1000, in one of which the nurse scrubs her hands and forearms after using the alcohol, the other of which is reserved for the patient. Each bowl contains its own sterilized brush. The moist towel is removed from the patient and the area before mentioned rubbed with alcohol, the nurse using for this purpose a ball of sterilized lamb's wool enclosed in sterilized gauze. The assistant pours the alcohol on the part slowly as the nurse proceeds with the rubbing, and the assistant does not touch anything that will come in contact with the area being disinfected. After the alcohol rubbing the assistant removes the lid from the jar containing towels, and the nurse places a sterilized towel on each side of the area. The bichloride solution is then handed, and the part scrubbed fully five minutes with as much force as the patient will comfortably bear; it is dried with a sterile towel, pieces of corrosive gauze laid over the whole area and held in place by a bandage or binder adapted to the particular area,—a Scultetus bandage if the prepared part be the abdomen or back, the classical spiral if the part be an extremity. This completes the primary disinfection. The patient's bed is arranged tidily and the screens removed from around it.

The extent of the area that is thus cleansed will depend altogether upon its location and upon the gravity of the operation to be performed. A sebaceous cyst of the scalp, for example, would require shaving and cleansing of the growth and a limited area surrounding it, a towel properly placed at the time of operation protecting the operator's hands and instruments from coming in contact with the rest of the head; while a proposed craniotomy would necessitate cleansing and shaving of the entire head, neck and shoulders, including eyebrows and beard,

special attention being given to the external ear. A small fibroma of the breast where diagnosis is absolutely certain would require cleansing only of the mammary gland and immediate vicinity, while the removal of a carcinoma of the breast, whether involvement of the axillary glands be previously detected or not, or in a case of any mammary growth simulating malignancy and where positive diagnosis cannot be made before incision, would demand an extensive surgical toilet reaching from the line of the jaw to the level of the umbilicus and from the opposite shoulder to the middle of the back, including the arm of the affected side.

In operations upon the pubic, perineal and ischio-rectal or sacral regions in the female, the pubes, vulva and neighboring parts are shaved and cleansed, the vagina is scrubbed with a pledget of lamb's wool and a mixture of an ounce (29.57 Cc.) of the tincture of green soap to one pint (373.24 Cc.) of a two-per-cent. creolin mixture, followed by copious douches of warm sterilized water; this in turn by a boric acid douche three drachms (11.09 Cc.) to the pint. A bichloride dressing is then applied, and held in place by a broad T-binder. For douching the vagina the boric acid solution is used in preference to the bichloride solution, which is still used extensively in some hospitals but which does not exercise the slightest germicidal influence upon micro-organisms in the vagina, as Steffek has shown, and furthermore by irritation causes lessened tissue resistance and greater liability to infection, as Schimmelbusch has proved by actual experiment.

Operations on the rectum will require frequent laxatives and enemas beforehand, and at the time of operation a tampon of lamb's wool, with string attached to facilitate its removal, is pushed into the bowel, and located above the operative site in order to keep the intestinal contents from soiling the wound.

In abdominal operations the umbilicus will require special attention, and where the folds of the skin run down to such a depth that it is impossible to cleanse it thoroughly, it is covered by a wet bichloride mop, and at the time of operation iodoform collodion is poured over the umbilicus, shutting it off entirely from the operative field. In operations on the lower extremities it will often be a matter of considerable patience to thoroughly disinfect the skin of the feet, which usually are not bathed regularly by the class of patients who fill the hospital wards, and in order to get rid of the excrementitious matter, and

the saprophytic and pathogenic bacteria that are sheltered by the hard callous epidermis, a hot compress of weak bichloride solution surrounded by rubber dam is applied to the extremities after each daily bathing and allowed to remain. This is followed by scrubbing with the solution. The callous epidermis comes away by maceration after several such compresses have been applied. In operations upon the genito-urinary tract, besides the cleansing of skin, scrotum, and penis in the male, if necessary the bladder is irrigated three times a day with a solution of boric acid ten grains (0.648 Gm.) to the ounce, and salol and boric acid, each five grains (0.324 Gm.), are administered every four hours to disinfect the urine.

In operations in the mouth, pharynx, nose, or on either maxilla, the patient uses a mouth wash and gargle of a solution of boric acid and Listerine, every four hours, and uses a moderately stiff tooth-brush and precipitated chalk at least thrice daily. The nose and mouth are also thoroughly sprayed every two hours with a boric acid solution for two or three days.

The evening before the day of operation the patient is given two drachms (7.39 Gm.) of Rochelle salts, which dose is repeated early the following morning, and when the bowels have moved the rectum is flushed with a copious soap-and-water enema.

On the morning of the operation day he is given a hot sponge-bath in bed, followed by an alcohol rubbing. The dressings applied the previous day are removed, the disinfection repeated, and fresh dressings applied. He is not allowed to rise from the bed unless it be for evacuation of the bladder or bowels, as thus he will expend the least amount of vital force. A final enema of soap and water is given to thoroughly cleanse and empty the rectum, so that its mucous surface will be in condition to absorb, should extreme shock or excessive hemorrhage later on call for enteroclysis and the injection of stimulating enemata. A cup of tea or coffee or beef-tea is taken five hours before operation, and nothing else passes the lips, unless it be a small draught of brandy. He is given a suit of clean underlinen, a nightshirt, and loosely fitting cotton-flannel stockings which envelop the whole limbs and are tied loosely around the waist. The nurse removes any jewelry and false teeth worn by the patient, and at the stated time he is wheeled on a rolling table to the anesthetizing room.

[To be concluded.]

## THE VALUE OF CAMPHORIC ACID IN THE TREATMENT OF NIGHT SWEATS.

By H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

In the January issue of the *Edinburgh Medical Journal* my friend Dr. Ralph Stockman contributes a paper in which he notes the value of camphoric acid in the treatment of night sweats, and quotes considerably from foreign literature on this subject in support of his own clinical experience.

The writer of this article has on several occasions in papers which have been published, and every year to his class of medical students, emphasized the value of this remedy as an antisudorific. His first experience with it was in the wards of St. Agnes' Hospital during 1890-91, where he found, as Dr. Stockman has, that it controlled the sweats of tuberculosis in the great majority of cases and did not produce any disagreeable symptoms whatever, such as are usually caused by atropine or other powerful antisudorifics. He also in the first edition of his "Text-book of Practical Therapeutics," published in 1891, spoke of the value of this drug for this purpose, and in *The Medical News* of April 4, 1891, he contributed a paper in which he detailed two cases which had been markedly benefited by very moderate doses of the drug. He pointed out in this paper that twenty grains was usually quite sufficient to control the sweat, provided it was given early enough to be absorbed before the time of the sweat was reached; and he also pointed out, what other Continental observers had previously noted, that as much as sixty grains of this drug may be given without deleterious effect. A continued large employment of camphoric acid in the six years that have succeeded this report has still further confirmed his high opinion of this remedy. Like every other remedy, it will fail in some cases, but no remedy has been met with which in his hands so universally succeeds. It may be given in cachet, dissolved in whiskey or brandy, or placed in dry powder upon the tongue and washed down with a little water or milk; but as it is slowly absorbed it should be given an hour or two before the time at which the sweat usually comes on. The writer has also found camphoric acid of great value in the treatment of idiopathic pytalism as it is sometimes met with in young children, as it controls the salivation without disordering the digestion.

# The Therapeutic Gazette

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## Leading Articles.

### THE TREATMENT OF BRONCHOPNEUMONIA.

In the THERAPEUTIC GAZETTE for October, 1896, we published a leading article on the Treatment of Pneumonia in Children, and the frequent occurrence of this class of cases lends additional interest to the paper which Gaston Lyon contributes upon this subject to the *Revue de Thérapeutique Médico-Chirurgicale* of November 1, 1896, in which, after pointing out the gravity of the affection, and that in many cases it is a secondary complication of other diseases, such as measles, influenza, typhoid fever and similar ailments, he dwells upon its frequency in childhood and then discusses its treatment.

In regard to prophylaxis, he asserts that it is absolutely necessary that a patient suffering from the disease should be isolated in order to diminish the chances of other children in the same institution being infected; and further, that in the process of isolation care should be taken that children suffering from any one of the infectious diseases named should not be unduly exposed. He believes

that it is well to carry out rigid antisepsis in regard to the mouth and nasal cavities, and suggests that the recommendation of Marfan, of instilling several times a day an antiseptic liquid into the nasal cavities, should be carried out. Thus five or six drops of the following solution may be employed:

- Oil of sweet almonds, 1½ ounces;  
Menthol, 15 grains.

Or in other cases there may be employed:

- Vaselin, 1 ounce;  
Resorcin, 7 grains.

Or, in place of resorcin, guaiacol 15 grains.

This is to be applied to the nostrils as high up as possible with the finger. Nasal irrigations may be practiced in some very young children, using carbolic acid solutions in the proportions of 1:500, or resorcin in a solution of 1:100, and these solutions may also be used for washing the mouth—particularly about the gums—teeth and tongue. Sometimes it is well to rinse out the mouth several times daily with water which has been sterilized by boiling. In whooping-cough, influenza, measles, and other conditions associated with bronchitis, Lyon facilitates expectoration by the inhalation of aromatic vapors; he also sees to it that the child does not remain too long in one position so as to produce a tendency to hypostatic congestion. Care is also taken to render the intestinal canal antiseptic, as far as possible, as he believes that the *bacillus coli communis* may pass from the intestine into the lung and so produce secondary bronchopneumonia. For this reason the regulation of the diet in order to avoid any digestive disturbance is of the greatest importance. By these measures directed to the respiratory and alimentary tracts Lyon thinks that he distinctly helps in preventing the occurrence of bronchopneumonia as a complication of the diseases named.

In regard to the treatment of this disease in children, he believes that in the early stages of the affection the congestive process should be combated by revulsive measures and by the application of hot compresses or mustard plasters, or by rubbing the chest with oil or turpentine mixed with camphorated liniment, the skin being covered afterward by sheets of thin rubber. In other cases cold applications may be employed, but these are not so useful. If mustard poultices are used, care must be taken to prevent them from becoming cold and chilling the patient, and as mucus accumulates in the bronchial tubes,

particularly if it is in excess, he believes that it is well to give an emetic. For this purpose he thinks that ipecac is the best drug that we can employ. He generally orders the following prescription:

- ℞ Syrup of ipecac, 1 ounce;  
Powdered ipecac, 4 grains.

And gives two doses with a ten-minute interval. If the child is exceedingly feeble and it is not considered well to administer an emetic, the following mixture may be ordered:

- ℞ Syrup, 1 ounce;  
Syrup of tolu, 1 ounce;  
Cognac, 2½ drachms;  
Acetate of ammonium, 20 grains;  
Benzoate of sodium, 20 grains.

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One or two teaspoonfuls of this may be given every hour or every two hours according to the age of the patient. If the cough is excessive it may be well to add to this mixture from three to four drops of the tincture of belladonna or the tincture of aconite, but as a general rule narcotics and antispasmodics are not desirable in very young children. The air of the room in which the patient is lying should be moist, and it may be well, in addition to the steam which may be given off from the boiling water, to use steam which comes from the infusion of eucalyptus leaves to which has been added a little of the tincture of benzoin. In many cases, if constipation is present, it is well to give small doses of calomel, such as one-sixth of a grain, in order to evacuate the bowels and render them antiseptic. Drink should be given in abundance, particularly milk, as it facilitates renal activity. Fever is to be combated by the use of cold applied locally to the chest, or of tepid baths; or in other cases where sponge bathing is impossible, antipyrin may be used as in the following prescription:

- ℞ Antipyrin, 5 grains;  
Syrup of cinchona, 1 ounce;  
Syrup of eucalyptus, 1½ ounces;  
Peppermint water, 2 ounces.

A small teaspoonful every hour or two.

Or the following prescription can be employed:

- ℞ Distilled water, ¼ ounce;  
Simple syrup, 2½ drachms;  
Extract of licorice, 75 grains;  
Neutral muriate of quinine, 8 grains.

A small teaspoonful at a dose.

In other cases it is better to employ quinine in suppository, as neutral hydrochlorate of quinine 3 grains, coca butter 15 grains.

The following may be used by the subcu-

taneous method, with a hypodermic syringe, but is not generally advisable:

- ℞ Hydrochlorate of quinine, 30 grains;  
Distilled water, 2½ drachms.

Warm and give 10 to 30 drops at a dose.

As a stimulant it may be necessary to prescribe brandy or Malaga wine in small doses, or the following prescription may be used:

- ℞ Syrup of cinchona, ¼ ounce;  
Syrup of orange flower, ¼ ounce;  
Brandy, 1 to 2 ounces;  
Infusion of mint, 2 ounces.

A small teaspoonful as needed.

The alcoholic stimulant, if used, should be given at regular intervals. Should there be evidence of a failing heart and some cyanosis, minute doses of powdered digitalis or infusion of digitalis may be given three times a day, or caffeine associated with benzoate of sodium may be given by hypodermic injection. To combat asphyxia when it is imminent and to overcome nervous adynamia, Lyon believes that camphorated oil injections are of value; he gives ten to thirty minims of a ten-per-cent. solution of camphor and sweet oil hypodermically. Sometimes minute doses of powdered camphor rubbed up with sugar of milk may be given internally. In case of severe cardiac failure where an active stimulant is required, the following prescription is given:

- ℞ Sulphuric ether, 10 to 30 drops;  
Syrup of orange flower, 1 ounce;  
Syrup of tolu, ½ ounce;  
Linden water, 3 ounces;  
Mint water, ¼ ounce.

A teaspoonful of this mixture is given as frequently as needed.

In other instances where asphyxia seems imminent, the child may be plunged in a hot mustard-bath and remain there from four to five minutes. The bath is prepared by placing in it a small bag containing from three to five ounces of mustard flour. Whether it is wise to use the cold bath under these circumstances is doubtful, but some practitioners have been enthusiastic in its praise, particularly if there has been a tendency to hyperpyrexia; and in some cases Lyon asserts that its use in desperate illness results in "veritable resurrections."

The use of serum therapy, or the use of anti-streptococcus serum of Marmorek, is as yet uncertain, particularly as the infection is probably often a mixed one.

During the disease and during the convalescence the diet should be most nourishing

and easily digested, and as convalescence is about to be established it is well to make applications of iodine to the chest-wall or to aid in the absorption of exudations by counter-irritation. During convalescence any bronchitis which persists should be treated by the various balsams, or by one or two teaspoonfuls a day of a mixture of equal parts of syrup of tolu and syrup of turpentine. In the way of tonics to general nutrition, cod-liver oil and hypophosphite of lime is of advantage; and should there be any involvement of the tracheo-bronchial glands or emphysema, iodide of potassium is particularly indicated. Iron is also of value should anemia be present, prescribed in the dose of three teaspoonfuls a day of the following mixture:

- ℞ Syrup, 1 ounce;  
Syrup of terpine, 2 ounces;  
Syrup of iodide of iron, 2 ounces;  
Peppermint water, 2 ounces.

Good results also follow the use of arsenic in small doses. In the treatment of adults suffering from bronchopneumonia following these affections, it should be remembered that many of them are much depressed and gravely ill, and that alcohol, coffee, strychnine and kola are of value as rapidly acting stimulants. Digitalis and caffeine may also be needed. Cold baths are of doubtful value in some of these cases and tepid baths generally do better; indeed, these tepid baths are sometimes of the greatest possible service in relieving the patient. Should asphyxia and great dyspnea be present, injections of ether and caffeine are to be employed with sufficient frequency to produce good results. Care must be taken to insist upon sufficient nourishment being taken by the patient. Quinine and alcohol should be given, and a milk diet combined with digitalis and caffeine will also be of advantage.

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#### *THE TREATMENT OF APOPLEXY.*

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There are few conditions met by the practitioner of medicine in which the possibilities of treatment are so limited as they are in that condition which we generally term apoplexy, for although this term has been applied to a general train of symptoms, these symptoms may arise from several different causes, and unfortunately each and all of these causes have heretofore at least been largely beyond medical or surgical treatment. Within the last year there has been published in the

shape of a small volume an exceedingly valuable experimental research by Leonard Hill of London, upon the physiology and pathology of the cerebral circulation; and in its pages, in addition to finding much of great interest, certain thoughts are advanced which may be of value to the physician in the treatment of the conditions of which we are speaking. He points out that Falkenheim and Naunyn recommend that the blood-pressure should be kept up by every means in conditions of cerebral compression; while on the other hand Bergmann, with whom Hill is in accord, clings to the traditional treatment of lowering blood-pressure by depletion. After pointing out certain facts which support the opinion of himself and Bergmann, Hill goes on to emphasize the fact that depletion is only indicated when the arterial tension is high, and he reiterates the statement already made by Gowers that before depletion is attempted the diagnosis of hemorrhage should be reasonably certain, because in thrombosis, embolism, and acute cerebral anemia a loss of blood will only do harm by weakening the cerebral circulation. The question as to the differential diagnosis between the paralysis produced by hemorrhage, by thrombosis, and by embolism gains an additional importance from a therapeutic standpoint over and above its diagnostic interest, and while we have not as yet outlined any definite series of symptoms which will separate positively these conditions from one another, it will be remembered that there are at least a few manifestations which may point to the exact cause of the paralysis.

In the first place apoplexy, which is due to hemorrhage into the brain, is usually met with only in that class of patients who have attained such an age that their arterial walls are undergoing atheromatous changes, although of course the presence of a syphilitic history, or other causes which tend to produce such changes in the arteries, may result in hemorrhagic apoplexy during the earlier years of life. Again in hemorrhage into the brain consciousness is generally lost, and the compression of the lower centres in the brain which is produced by hemorrhage is apt to result in the development of vomiting and contracted pupils; and again, it is usually the case that in hemorrhage into the brain the systemic shock is more manifest and the febrile movement is apt to be greater than when the paralysis results from thrombosis or embolism. It is true, on the other hand, that thrombosis of the cerebral blood-vessels

is rather a condition of advanced age than of youth, and it is a noteworthy fact that thrombosis frequently comes on during sleep, whereas hemorrhage usually follows some exertion and frequently takes place after the ingestion of circulatory stimulants. The history of syphilitic infection producing an endarteritis would of course point to thrombosis quite as much as to hemorrhage.

The differential diagnosis of paralysis due to embolism from that due to hemorrhage is still more difficult, but should the physician find evidence of chronic or ulcerative endocarditis or their results, or other causes for the formation of emboli, the diagnosis would be rather in favor of such a cause than of hemorrhage. It is also a noteworthy fact that paralysis from embolus is more commonly met with on the right side of the body owing to the fact that it is more easy for the embolus to pass into the left middle cerebral artery than into the right. Having endeavored to the best of our ability, therefore, to make a differential diagnosis between these three causes of cerebral paralysis according to Hill, we have certain therapeutic procedures to undertake. If it is embolism or thrombosis it will as a general rule be a mistake to bleed the patient; while if the cause of the paralysis be hemorrhage, venesection is usually indicated.

Hill goes even further than this, and asserts his belief that in cases of paralysis due to hemorrhage it would be a justifiable experiment to open the skull-cap in order to relieve the pressure which is being exerted upon the brain substance through the leaking blood-vessels; and at the same time the depletion results in a fall of general blood-pressure so that hemorrhage ceases by the more rapid coagulation of the blood and the plugging of the artery, and death is put aside because the opening in the skull prevents the compression of the medulla, which Hill's experiments have proved to be so fatal.

In other words, intracranial hemorrhage may be reasonably treated on the same surgical lines as intracranial abscess whenever death is imminent from compression. Hill also emphasizes a fact which has been familiar to physicians for many years, but which has not heretofore rested upon such scientific evidence, that free purgation depletes the brain and causes a determination of blood to the abdomen; and, on the other hand, that the application of cold to the head fails to cause constriction of the cerebral or any other vessels.

## ON THE PREVENTION OF GONORRHEA.

This subject is suggested by a pamphlet published by Dr. Albert H. Burr entitled "Gonorrhea: Its Ravages and its Prophylaxis."

It has been the habit for years not only among the laity, but also in the medical profession, to regard gonorrhea as a troublesome, annoying, often painful affection, comparatively innocuous when considered in relation to syphilis, self-limited and only exceptionally producing crippling, invalidism, or death. As a matter of fact it is a disorder attended with a distinct ultimate mortality, and as a rule it persists in its contagious state for months, exceptionally for years; its remote consequences are as serious as those of syphilis, it is much more contagious, and it probably cripples or destroys many more individuals.

It is universally recognized that a large percentage of the pelvic troubles to which women are subject are due to gonorrhea. The majority of sterile, impotent and neurasthenic men thus suffer because of gonorrhea. Arthritis, endocarditis, peritonitis and pyemia may be caused by the gonococcus, and a large percentage of the blind in early life owe their malady to infection from this micro-organism. Burr calculates on the census of 1890 that 5480 people in the United States are totally blind from ophthalmia neonatorum.

The complications and sequelæ of gonorrhea are infinitely more serious, in so far as the numbers affected are concerned, than those following scarlet fever or any of the infectious diseases against the spread of which our boards of health so scrupulously guard.

It is evident, since gonorrhea is dependent upon a specific micro-organism which has been isolated, since in the vast majority of all cases it is conveyed only by sexual contact, and since the symptoms of both the acute and chronic stages of the disease are easy of detection, that vigorous legislation would be even more effective in preventing the spread of gonorrhea than it has proven in the case of other micro-organismal diseases which have been brought under control by quarantine and hygienic regulations.

It may be said without fear of contradiction that in the country at large not even the first blind groping step has been taken in the direction of stamping out this malady. Burr would limit the spread of gonorrhea by:



(1) Thoroughly educating the entire community in sexual hygiene and the dangers incident to departure from the moral law, this teaching being made a part of the curriculum of the public schools and to include public servants in all departments of industrial activity. (2) By allowing the official sanction of marriage only in case the contracting parties could show a properly attested medical certificate of health. (3) By having the laws of the country so amended that proof of transmission of venereal disease would constitute a legal ground for divorce. (4) By making the transmission of venereal disease an act exposing the guilty party to suit for damages or to imprisonment. (5) By having prostitution under medical control and posting means of prophylaxis after exposure in houses of ill-fame. (6) By prohibiting the drug-store treatment of gonorrhea.

Burr holds that the measures thus outlined are practical, and would largely decrease the ravages of gonorrhea.

These suggestions are worthy of careful thought.

As to the educational side of the question, this is a matter not to be disposed of lightly. It is undoubtedly true that both sexes should at some time receive instruction regarding sexual hygiene and the immediate and remote effects of venereal disease. The circumstances under which such instruction should be given, the age which children should reach before they are thus taught, and the selection of the proper persons to convey this knowledge, are all matters for serious consideration.

As to legislative enactments requiring that each candidate for marriage should file a certificate of health showing freedom from hereditary taint, infectious and venereal disease before license could be issued; this is admirable but impracticable; not because it would fail of accomplishing good, but because so large a percentage of the population would then become barred from matrimony that such a law could not be passed.

The amendment of the divorce laws so that conveyance of the disease after marriage would constitute a legal ground for divorce, would lead to infinite confusion and render still more lax our regulations governing wedlock.

Rendering it a criminal offense to impart a venereal disease would perhaps be of some service but would be open to the objection that only those who were utterly abandoned

and shameless would be likely to bring action. Under such circumstances the testimony adduced would be practically worthless, since it would usually have for its object the obtaining of money.

There can be no question that the drug-store treatment of gonorrhea should be prohibited.

The question of sanitary regulation of prostitution appears to be one for the public consideration of which this country is certainly not at present prepared. Powerful arguments can be brought not only from the moral but from the practical side against any such procedure. The posting of means of prevention in houses of ill-fame legalized by Government is not to be commended.

Dr. Burr is to be congratulated upon having discussed this subject in a true scientific spirit; even though his suggestions in the main seem impractical, his pamphlet will certainly direct thought in this direction, and ultimately some more or less efficient scheme of prevention may be evolved. One which from its educational aspect would be widely serviceable would be the adoption of a rule upon the part of the Government, railroad managers, and corporations employing large numbers of men, making a part of the examination of those applying for positions a careful investigation of the urine for pus, with rejection of the candidate in case this is found. This would call attention to the persistence of gonorrhea and would make many thousands more careful to avoid contagion and more systematic and persistent in pursuing treatment directed to the cure of the disease when it is once contracted. This, in conjunction with the suggestion made by Burr as to the instruction of young women and men in the public schools, would at least educate the community up to the point of being willing to recognize the existence of the evil and to set to work openly toward finding a practical method of lessening or entirely eliminating it.

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## Reports on Therapeutic Progress

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### THE TREATMENT OF COUGH.

The *Journal des Praticiens* of September 5, 1896, emphasizes the fact that cough, as a rule, is simply a reflex symptom due to respiratory irritation. Sometimes it has its origin in the larynx, sometimes in the trachea or bronchial tubes or even deeper in the lung.

For laryngeal cough, it is often well to

resort to the application of hot baths or sinapisms to the feet, the avoidance of conversation which would irritate the larynx, and perhaps the administration internally of some balsam or opiate or some feeble preparation of aconite.

In chronic laryngitis the cough may be much modified by the inhalation of steam, by the atomization of various medicinal substances, and by gargling with sulphur waters.

Should the cough seem to come from the trachea, and there be associated with it some retrosternal discomfort, a mustard plaster applied over the sternum will be of advantage, and it is well to administer night and morning a pill containing two grains of quinine and one-sixth of a grain of belladonna.

Should the cough arise from difficulty in the bronchial tubes or pulmonary vesicles, opiates combined with such nervous sedatives as cherry-laurel water, belladonna, or aconite, are useful; and if paroxysmal, it is well to add one of the bromides to this mixture. Should there be any expectoration, the employment of any of the balsams, such as the balsam of Peru or even the oil of sandalwood, is of advantage.

It should never be forgotten that cough sometimes arises from reflex irritation due to disease in the nose, the ear, the stomach, or the uterus. Usually such a nervous cough is laryngeal, and local applications or inhalations are practically useless. It is much better to resort to the bromides and to hydrotherapeutic measures. Valerian or the ammoniated valerian are useful under these circumstances. Sometimes, however, in place of nervous sedatives nervous stimulants are of value, and full doses of strychnine, as much as one-twentieth of a grain three times a day, do good. In rebellious cases it is sometimes most advantageous to subject the patient to a change of climate.

#### EFFECT OF PHOSPHORUS ON GROWING BONE.

KISSEL (*Virchow's Archiv*, bd. cxliv, I, 1896) records a series of experiments on dogs with phosphorus during the period of growth. The drug was given in small doses in oil, this method being selected as most near to the usual mode of administration to children. He finds that phosphorus has much stronger toxic properties than is generally supposed, and that a disturbance of digestion during the use of phosphorus, though apparently trivial, may have a fatal significance; ten

centigrammes per kilogramme of body-weight caused symptoms of chronic poisoning, with marked atrophic process, where bone was being deposited; six centigrammes per kilogramme hinders the normal development of bone; 3.3 centigrammes per kilogramme is the largest dose that can be given without harm. In chronic poisoning from quite small doses there was marked fibrosis, with shrinking of liver. No dose of phosphorus had any favorable influence on the growing bone. He concludes that there is no evidence in favor of the use of phosphorus in diseases of bone. —*British Medical Journal*, July 25, 1896.

#### THE APPLICATION OF COLD TO THE THORAX IN CHILDREN.

*La Médecine Moderne* of August 26, 1896, tells us that BERNARDBEIG of Havre obtains very good results from enveloping the chest of the child in cold wet cloths in the treatment of pulmonary affections associated with high fever, following the method recommended by Gendre, which has already been abstracted in the THERAPEUTIC GAZETTE. A piece of gauze, folded eight or ten times, and still of sufficient width to reach from the axilla to the umbilicus and to completely surround the thorax, is dipped in water at the temperature of the room, wrung out, and applied to the patient's thorax; over it is placed a piece of sheet rubber. The application is renewed, a second compress being in readiness, every quarter- or half-hour until there is a diminution of the dyspnea, the temperature, and the nervous excitation. As a rule, under its influence all these symptoms are markedly ameliorated and no complications occur. Should the temperature persist, the tepid or cool bath is resorted to. As a rule, after the first application the child does not object to their further use.

The compresses are indicated in acute hyperemia of the lung, with marked congestion and venous stasis, in cases of bronchitis, idiopathic or associated with the eruptive fevers. They are also thought to be of value in the treatment of chronic tuberculosis.

Bernardbeig cites cases which show the best results of his application of this treatment. An infant of fifteen months, who was attacked by bronchopneumonia, with a high elevation of temperature, intense dyspnea, and nervous excitation, improved with very extraordinary rapidity after this treatment was instituted. A little girl of two years, with a bronchopneumonia of rapid onset associated

with symptoms of suffocative catarrh, received these cold applications every half-hour, with marked amelioration of the grave symptoms and a modification of the dyspnea. Again, a child with bronchopneumonia, with marked dyspnea and elevated temperature, markedly improved after the fifth or sixth application. The very great advantage of this method of treatment is that the child's stomach is not disordered by the administration of remedies.

#### THE TREATMENT OF PERITONEAL TUBERCULOSIS.

The *Journal des Praticiens* of September 15, 1896, points out that peritoneal tuberculosis can be treated in several ways. In a certain number of cases surgical intervention is absolutely justifiable; and if there is ascites, opening the abdominal cavity often gives excellent results. On the other hand, it is not to be forgotten that in many young subjects peritoneal tuberculosis often disappears if the patient is put under good hygienic circumstances, receives proper tonics, has counter-irritation applied to the abdomen, and perhaps wears over the abdomen, in place of counter-irritation, an application of iodoform maintained in place by collodion. Simple puncture of the abdominal cavity, with drawing off of the liquid, also gives good results in some cases. In other instances it has been found that rectal injections of creosote were of value.

Thus, one case is quoted of a child of eleven years, whose sister and mother died of tuberculosis, and who was herself attacked in 1894 with enlargement of the bronchial glands, and early in 1895 with abdominal pain, loss of appetite, signs of pleurisy at the left base, and other evidences of tubercular infection; there was no vomiting, but the abdomen was large, painful, and markedly resistant to palpation. The treatment consisted in the regulation of the diet, which was largely liquid, and the application of ichthyol to the abdomen. Later on, from the 7th to the 16th of March, enemata of creosote in an emulsion of cod-liver oil, seven drops to five drachms of oil, were given; from the 16th of March to the 20th of April the quantity of creosote was increased to fifteen minims, and from the 20th of April to the 27th of May to twenty-two minims. At this time an attack of diarrhea necessitated an interruption of the treatment for several days, but up to this period the abdomen had diminished in volume, the hard resisting masses seemed to

have been reabsorbed so that the resistance was not so marked to palpation, and by the 25th of June the infant left for the country in a much improved condition, with normal lungs and good appetite; it had gained in weight and become free of pain. It is stated that by the 12th of April following the child was still in good health, had been subjected to the use of sea baths in the south of France, and was considered absolutely cured.

Another child, seven years of age, without bad hereditary antecedents, but who had been attacked with influenza and a severe bronchitis in 1890, was presented for treatment, with signs of right pleuro-pneumonia and general bronchitis, abundant expectoration, febrile involvement, but no abdominal symptoms. A month later, however, anemia was marked, there were signs of dry pleurisy at the right base, the breathing was bronchial, the left side of the abdomen swollen, the belly puffy, and the intestinal coils seemed to be agglutinated. Inunctions of ichthyol were used, and creosote injections in the dose of fifteen minims were resorted to. Under this treatment the symptoms of pulmonary and abdominal disease gradually disappeared, so that two months after the treatment was begun the abdominal condition was much ameliorated, although physical signs of trouble still existed at the right base. The child, however, which had weighed only 17 kilogrammes on the 10th of May, weighed 21½ kilogrammes on the 9th of September; its digestion was also greatly improved, and later on it was subjected to sea baths.

The third case was that of a young man of eighteen years, who was treated in the same way and rapidly improved.

#### LAVAGE OF THE STOMACH WITH SOLUTIONS OF NITRATE OF SILVER.

In *La Médecine Moderne* of September 16, 1896, an account is given of a method first employed by Forlanini in 1891, which consists in washing out the stomach in cases of excessive hydrochloric-acid secretion associated with chronic catarrh, first with pure water to which has been added in some cases a little soda, then with a liter of a solution of ten to thirty grains to the quart of nitrate of silver, which in turn is immediately followed by a solution of the chloride of sodium of the strength of thirty to forty-five grains to the quart in order to neutralize any excessive action of the silver solution. It is best to commence with a very weak solution of ni-

trate of silver, and gradually to increase its strength. Generally the best results are obtained from solutions of about fifteen grains to the quart. Under this treatment motor power of the stomach is greatly improved, and the quantity of liquid which remains in the organ after the repast is consequently considerably diminished. In one case the liquid diminished from 260 centimeters to 32. As a result, constipation is to a certain extent overcome and the general morbid symptoms disappear, among others vomiting; there is general systemic improvement, the patient gains in weight and muscular power, and nervous disorders and hypochondriasis disappear.

It is asserted that in the treatment of hyperchloracidity of a chronic type, with atony, these washings with nitrate-of-silver solution give better results than any other method of treatment yet tried.

#### THE TREATMENT OF SIMPLE GLAUCOMA.

HANSELL tells us in the *Philadelphia Polyclinic* of January 2, 1897, his treatment of glaucoma. He points out that simple glaucoma is essentially non-inflammatory in its origin, course, and termination as compared with true glaucoma in its acute and chronic forms. The main, if not the only, point of resemblance is the excavation of the optic nerve, and it is doubtless because of the presence of this diagnostic sign that the old classification has been retained. There is rarely in its history injection of the ciliary blood-vessels, pain, periodic loss of vision, or other evidence of acute increased intra-ocular tension. The diagnosis of the affection depends, in the main, upon two coincident conditions, namely, gradual diminution of vision, both central and peripheral, and slowly advancing cupping of the nerve-head. But spinal and idiopathic (no assignable cause) optic-nerve atrophy are characterized by similar symptoms. For this reason Schweigger suggested in 1891 that the term "simple glaucoma" should be accepted with considerable reservation. Increased tension, that *sine qua non* of glaucoma, cannot be demonstrated. The enlargement of the pupil is not dependent upon paralysis from pressure of the ciliary nerves that lie in grooves in the sclera, but is found only late in the disease, when atrophy of the nerve is far advanced. Recession of the near-point from failure of the accommodation is not a pro-

nounced symptom. A patient will require a stronger glass for reading than the healthy eye, but only because he needs magnification of the letters, that they may be perceived by the partly atrophic retina. It is not claimed that simple glaucoma should be classified among optic-nerve atrophies, although atrophy is one of its conspicuous features. It differs from them in that the cupping of the nerve-head is inconsistent with the advance of atrophy; that the disk is surrounded by a scleral or white, and not a choroidal or pigment, ring; that limitation of the nasal is more pronounced than that of the temporal field, and irregularly placed and sized scotoma are not infrequent; that it is favorably influenced by myotics and operation. This brief and imperfect enumeration of some of the facts that dissociate the simple or non-inflammatory type of glaucoma from the inflammatory forms and from atrophy of the optic nerve, and place it in a class by itself, are worthy of consideration in the projected treatment of every case. Great diversity of opinion may be found in the writings of clinicians as to the efficacy of the various remedies. Some, among whom may be mentioned Cohn, Abadie, and Simi, agree that the daily use of solutions of eserine sulphate is indicated. The first writer claims to have retained full acuity of vision and normal fields for a period of fourteen years. On the other hand, Nettleship urges iridectomy without delay, and Ramsey as soon as the diagnosis is established. Wicherkiewicz recommends first eserine, then sclerotomy, finally iridectomy. Our own experience is opposed to immediate iridectomy, for the following reasons: (1) Iridectomy on one eye has been known to precipitate an attack of acute glaucoma in the second eye. (2) In order to be of value the artificial pupil should include one-fifth of the iris. The astigmatism consequent upon the corneal incision and the irregular refraction of the extra-pupillary portion of the lens is detrimental to good vision. It not infrequently happens, also, that cortical opacities of the lens coexist with simple glaucoma. (3) Malignant glaucoma, rather indefinitely described by Schweigger, and accurately defined by Friedenwald as a painful and nearly always incurable blindness following the operation of iridectomy for glaucoma, may be encountered. (4) Eserine, a painless application that may be continued for years without danger, is of indubitable value.

The brief history of a case that has been

under observation for five years will serve to illustrate the efficacy of eserine and the uncertain value of iridectomy. Mr. S., aged fifty-two, complained in 1891 of diminution of vision for far and near. Right 20-30, left 20-50, brought to the normal by low-power minus cylinders. Both disks were cupped over their entire surface. The fields were concentrically contracted, but only moderately so. Until very recently vision and fields have remained unaltered through the use of one-half grain solutions of eserine, applied once daily, and the patient has been able to use his eyes without discomfort. A few weeks ago the eserine seemed to have lost its power. Double iridectomy was performed. The healing in the left eye progressed without incident. On the second day after operation on the right, vision was totally abolished in that eye for a short time. The wound was closed, and the anterior chamber reestablished, and the eye very slightly congested. Under hourly instillations of one grain solutions of eserine vision returned to its previous acuity in two days. Here, then, is an instance of retention of vision for four and one-half years by the constant use of eserine, and of an acute glaucoma precipitated by iridectomy.

#### THE TREATMENT OF ULCER OF THE STOMACH BY SUBNITRATE OF BISMUTH IN VERY LARGE DOSES.

We learn from *La Médecine Moderne* of September 9, 1896, that KRAMER has reported very good results from the use of massive doses of subnitrate of bismuth in gastric ulcer after lavage has been gently employed, until the water left the stomach perfectly clear and transparent. He injects into this organ a mixture composed of six drachms of subnitrate of bismuth in 200 cubic centimeters of warm water. In the course of five or six minutes the bismuth is deposited over the entire surface of the stomach. These applications are made every two days until a cure is effected, as little food being given by the stomach as possible. The results are said to be remarkable, and in no instance were symptoms of intoxication by bismuth produced. Thus, in nine cases the cure was most rapid; in two others the results were not so good. Altogether, as much as 100 to 200 grammes of bismuth may be used in this manner, without danger of producing symptoms of intoxication. It is needless to add that the bismuth must be absolutely pure. [The only objection to this plan of treatment is that it neces-

sitates the dangerous procedure of introducing a stomach-tube in cases of gastric ulcer.—ED.]

#### THE TREATMENT OF ATROPHIC CATARRH.

In the *Medical Record* of January 2, 1897, Dr. JOHN NORTH of Toledo gives the following interesting directions for the treatment of this troublesome affection: The first thing is to clean the nasal cavities of all crusts and to see that they do not form again. Without thorough cleanliness nothing can be done to cure atrophic catarrh. There seems to be a prevailing opinion among physicians that atrophic catarrh cannot be cured; that all that can be done is to keep the nose free from crusts and give the patient temporary relief. Our books and teachers tell us that this is all that can be done.

After a number of years' experience in the treatment of atrophic catarrh the writer is prepared to say that not only can it be relieved but it can be cured in almost every case. It will take long and persistent daily treatment, extending over from one to three years. It is not necessary for the physician to make the treatment during all this time. With proper appliances the patient will be able to do most of the work, calling on the physician only once a week or once in two or three weeks. For the first few weeks the physician should make the treatments.

The crusts should not be removed by force. An atomizer should be used with an antiseptic and alkaline solution. Dobell's solution or some of its modifications can be used for this purpose. Seiler's tablets answer a good purpose, but the writer prefers the following:

- ℞ Resorcin,  $\frac{1}{4}$  drachm;  
Sodium bicarbonate, 15 grains;  
Sodium borate, 15 grains;  
Glycerin, 1 ounce;  
Aqueous extract of hamamelis, 2 ounces;  
Water, enough to make half a pint.

The writer has a tablet made containing five grains of resorcin and two grains each of bicarbonate of sodium and borate of sodium. One of these tablets is dissolved in one ounce of water, or, still better, in a saturated solution of hydronaphthol.

One of the foregoing solutions should be warmed and the nasal cavities thoroughly sprayed with it at least once every day. After the solution has been used thoroughly, the parts should be sprayed with warm vaselin containing ten drops of campho-menthol

and five drops of eucalyptol to the ounce. This treatment should be persisted in till all the crusts come away and are prevented from reforming. Then the patient is ready to commence active treatment. If the case is a mild one and not too far advanced, resorcin is one of the best applications to use. The resorcin wash should be used and then the nasal cavity thoroughly sprayed with vaselin and resorcin (one per cent.). As resorcin is insoluble in vaselin, it is first dissolved in hot glycerin and then mixed with the vaselin; in some cases thymol is also added in the proportion of five grains to the ounce. This treatment will clean the cavities thoroughly, act as a disinfectant, and promote the growth of healthy tissues. In old advanced cases, in which the membrane has atrophied to such an extent as to appear like parchment, with little or no secretion, the writer gets better results with judicious use of trichloroacetic acid.

There is no remedy in the entire *materia medica* that is so useful in the treatment of all nose and throat troubles as trichloroacetic acid. Dr. Stein, of Moscow, says that in solution of from 1-to-500 to 1-to-2000 it will keep all suppurative processes in abeyance for a week. In weak solution it is one of the best antiseptic remedies that the writer has ever employed, and it also causes stimulation to atrophic membrane to a greater extent than any other application with which the writer is acquainted.

Dr. Stein says: "Weak solutions of trichloroacetic acid used in the nose in simple atrophic rhinitis for a considerable time sometimes produce such a decided hypertrophy of the turbinated membranes that it may become necessary to cauterize them in order to secure free breathing. No other medicine of which the writer is cognizant produces such a remarkable effect, and thus this agent is particularly applicable in the treatment of *ozena*. In true *ozena* he now applies stronger solutions than he did at first—*i.e.*, one-half to ten per cent. The odor is not so quickly nor so thoroughly abolished by any other medicinal agent as by the acid. Here it is certainly a specific."

From his use of trichloroacetic acid during the past six years North agrees with Dr. Stein in every particular. He keeps a number of solutions of the acid on hand, varying from one to fifty per cent. After the nose is thoroughly cleansed with the resorcin solution, the part is dried with absorbent cotton, and then a two-per-cent. solution is applied on a probe with cotton to the diseased mem-

brane; the strength is increased as the effect becomes less active, spraying afterward with the vaselin and resorcin.

We sometimes find a portion of the mucous membrane entirely denuded of epithelium and in which the glands are all destroyed, leaving a thin, dry layer of membrane covering the bone. In these cases the treatment mentioned will not stimulate the part nor cause new epithelium to cover the atrophic part; it is therefore necessary to stimulate the edges of the diseased part and cause the mobile leucocytes to collect at or near the edges. In time the entire surface becomes covered over with a thin mucous membrane, which after a further interval becomes thicker and furnishes sufficient moisture to prevent the formation of incrustations. In treatment of these cases he follows the method of the horticulturist when he finds a tree denuded of its bark—*i.e.*, blazing. Nature has made an effort to repair the injury by throwing out a secretion around the edges, which organizes and partially covers up the denuded surface by the formation of a thin bark. At this time the horticulturist scratches the edges of the thin bark and nature covers up still more of the surface. If this is continued, in time quite a large space will be covered up with this thin bark, and gradually it becomes thicker and almost removes the appearance of injury.

The writer proceeds as follows: He cleans the part thoroughly with the resorcin solution; then takes a twenty-per-cent. solution of trichloroacetic acid and applies to the edges of the atrophic space, not allowing it to come in contact with any other portion of the membrane. This produces slight irritation and causes the nutrient pabulum of the blood and also the mobile leucocytes to collect beneath the coagulated rind formed, and to become organized under its protection. The part should be well covered with solid vaselin and resorcin. If this treatment is followed up from time to time, the part, if not too large, will become completely covered, and the membrane be capable of performing at least a portion of its function. He has treated a number of cases by this method with good results.

#### LIQUID MALT PREPARATIONS.

The *Journal of the Boston Society of the Medical Sciences* for November, 1896, contains the following note by HARRINGTON on liquid malt preparations:

Twenty-one different brands of liquid malt

extract were obtained and analyzed. That they were not true malt extracts is shown by the fact that in no one was the slightest diastasic power; all were alcoholic, some being stronger than beer, ale, or even porter. Six contained less than three per cent., five contained between three and four per cent., four between four and five per cent., two between five and six per cent., three between six and seven per cent., and one over seven per cent. of alcohol. In food value they proved to be about equal to heavy beers and porters. In a number of specimens a large amount of salicylic acid was detected, the largest amount being found in one which claims to have been "made in Germany."

#### GALL-STONES AND THEIR MEDICAL TREATMENT.

In the course of quite an extensive article on this topic published in the *Intercolonial Medical Journal* of Australia of October 20, 1896, R. B. Duncan points out that the medical treatment of gall-stones is eminently unsatisfactory from whatever point it is regarded. It is quite true that, during the paroxysm, we can generally afford relief by means so well known that they need not be alluded to. The real question arises as to our ability to act on the gall-stones themselves, and rid the patient of their dangerous presence. Is it possible for us either to prevent the formation of the stones themselves, to effect their solution, or to promote their discharge? There is no doubt whatever that timely and careful treatment can do much to prevent the formation of biliary calculi, but the writer's experience leads him to believe that we are seldom consulted at a stage when our efforts in this direction would be of much avail. If we are called upon to treat such a case, then exercise undoubtedly is to be warmly commended, not taken indiscriminately, but graduated exercise after meals; this favors the flow of bile at a time when its secretion is most active. Perhaps of scarcely less importance is massage in the neighborhood of the gall-bladder and common duct. If these measures are supplemented by warm alkaline baths, a sufficient amount of attention will have been paid to the hygienic aspect of prevention. No treatment can be of much avail, from this point of view, unless strict attention is paid to the diet. Bearing in mind the causes which may lead to an excess of cholesterin in the bile, and also the condition of the bile favorable to its deposi-

tion, one or two important principles may be laid down. Meat, for instance, should be taken in the strictest moderation, and fats and sugars at the same time entirely excluded from the dietary. Moderation must also be observed in regard to farinaceous substances. Two articles of this nature are singularly unsuitable, namely, peas and carrots—the former containing a substance similar to cholesterin, and the latter a form of vegetable cholesterin itself. It is not often, however, that we are able to anticipate the formation of such concretions by any such advice, as cholelithiasis is generally a recognized fact when our opinion is sought on the matter.

The purely medical treatment of this affection has at all times excited a considerable degree of interest, and the remedies recommended at one time or another have been more distinguished for quantity than efficiency. It would serve no useful purpose were we to enumerate the various remedies that have been recommended in this affection. There cannot be any possible doubt that a course of alkaline treatment has been attended with benefit, not only in expulsion of the stones, but in preventing their formation. The histories of such Spas as Carlsbad, Vichy, Ems, Kissingen, and others, afford ample evidence on this point. It must be remembered, however, that such a course of treatment combines the use of alkaline baths as well, and a rigid dietary. Whilst this is of no practical value to practitioners far removed from these resorts, still the lessons that such courses of treatment inculcate can be to a certain extent imitated. An alkaline course of treatment renders the bile more alkaline and watery—a state conducive to the disintegration of stones already formed, and to their prevention. Whilst there can be no doubt as to the beneficial action of alkaline mineral waters, their mode of action would seem to be chiefly that of expulsion, as careful examination of stones passed under such a course of treatment shows little or no chemical action. This statement, however, still wants elucidation. The experience gained at some of the above mentioned resorts is conclusive as to the curative value of such waters if taken over a long period of time and repeated at intervals. When it is desired to imitate the action of the above mineral waters, the bicarbonate of sodium and sulphate of sodium may be used, separately or in conjunction. Their method of administration will depend on so many circumstances that it is unnecessary to enter into particulars. It may be

said, then, that alkaline remedies, administered under such conditions, remove "acidity of the stomach, correct any congestion of the liver that may be present, and render the biliary secretion more watery and alkaline." By this means formation is anticipated, and when this has taken place the stones are acted upon chemically, and their expulsion also promoted.

There are one or two subsidiary remedies that demand a passing notice. Much attention has been paid at times to a remedy composed of three parts of sulphuric ether and two parts of oil of turpentine. Of this, the patient should take four grammes every morning until 500 grammes of the mixture have been taken. This remedy has, in some instances, received unqualified praise, and in other instances has been as unsparingly condemned. Some of its beneficial action is ascribed to its antispasmodic effects. The most extravagant claims have been made regarding the solvent action of chloroform on gall-stones, but these have not stood the test of time and experience.

A remedy which is largely used at the present time is olive oil. Opinions regarding it are extremely conflicting. The writer has tried it repeatedly, but with absolutely no success except in one instance. As the case is rather a striking one he reports it. The patient was a lady sixty-two years of age, and extremely stout. The diagnosis of her state was rendered easy by the early discovery of gall-stones in her motions. He has never had a case in which the suffering was so severe—indeed, terrible. During the paroxysms she was rendered almost frantic, and large doses of morphine had to be administered to give her relief. Every likely remedy had been tried in vain, and more for the sake of doing something than because of any benefit that was expected, olive oil was ordered. Its administration was commenced during a paroxysm, and the effect was nothing less than marvelous. From the moment of its administration the symptoms rapidly subsided, in the course of a few days disappeared altogether, and have not since returned, a period of nearly twelve months intervening. Soon after she began to take the oil the patient declared that she was passing large numbers of stones. An examination easily disproved this statement. She was passing numbers of concretions certainly, but they were not gall-stones. In this instance a beginning was made with two ounces of the oil twice daily, rapidly increased to half a pint.

The oil was taken without a single drawback, and the relief was immediate and permanent. Of its mode of action little is known, but it is thought to act chiefly as a cholagogue.

#### DIAGNOSIS OF PUERPERAL INFECTION.

B. C. HIRST, in the *University Medical Magazine* for November, 1896, writes a valuable paper on this subject. He directs that an antiseptic vulvar pad should be worn during the continuance of the lochial discharge so as to protect the genital orifice from contact with the atmosphere; and the materials of which this pad is composed, or rather the antiseptics with which it is impregnated, should be chosen with a view of keeping the bloody discharge from decomposing should it soak through the pad, and thus be exposed to atmospheric contamination. The best materials for this purpose in the writer's experience are salicylated cotton and carbolyzed gauze.

The water for douches, if they are employed, or for washing off the vulva and perineum, may be the source of fatal infection. All the water used about a puerpera should be boiled beforehand for at least half an hour. It is not sufficient to make a germicidal solution—as for example of corrosive sublimate—in the belief that all germs in the water are killed by the antiseptic employed. Tetanus bacilli will live for hours in a 1-to-4000 bichloride of mercury solution, and the other antiseptics usually employed in obstetric practice,—lysol, kresol and creolin—may be perfectly inert against many dangerous pathogenic germs during the time that usually intervenes between the preparation of an antiseptic solution and its use upon a patient. He has seen three women contract tetanus from intra-uterine douches of unboiled water (creolin two per cent.) during a time when the water of Philadelphia was unusually turbid in consequence of freshets in the Schuylkill Valley.

The puerperal woman may be infected by disease-germs carried upon her person, especially in the pubic region; by her personal clothing, by the bedclothing and mattress, by the vulvar pads and the pads upon which the buttocks rest, by the material used to wash off the vulva and perineum, and especially by pathogenic bacteria lodged in the vaginal or uterine mucous membranes before labor or even prior to conception.

To insure the greatest obtainable degree of personal cleanliness, the woman falling in



labor should be given a full bath, special attention being paid to scrubbing the genital region most thoroughly with soap, hot water, and a soft bristle brush or a wash rag. After the bath the woman should put on clean clothes throughout. The mattress on her bed should not be soiled by the discharges of previous labors, by urine, feces, or other putrescible matter. It should not have been used in any case of contagious or infectious disease, and it should be protected by a rubber cloth that has been carefully scrubbed clean. The bedclothing should be clean, the bed being freshly made up for the labor. The pads on which the buttocks rest during labor and afterwards should be made of nursery cloth, prepared in the way described in the writer's directions to the nurse (boiled and dried). It is scarcely necessary to say that a pad when soiled should be thrown away and not used again. The vulvar pads should be made of carbolized gauze and salicylated cotton, the best materials for disinfecting a bloody discharge. The nurse should make them up with sterile hands as they are required, or, if she makes a number at a time, they should be wrapped in a clean towel and taken out for use with sterile hands. The materials used to wipe off the genital orifice, the mouth of the urethra, and the perineum should be absorbent cotton soaked in a 1-to-1000 solution of sublimate for at least a half hour before its use. During the second stage of labor these pledgets of cotton are employed to wipe away feces as it emerges from the anus, always in the direction from before backward.

Care must be exercised to remove blood and blood-clots from the vulva before putrefaction sets in. This is best done by placing the woman on a bed-pan, letting a stream of boiled water run over the parts, and if necessary using cotton to wipe them off. This should be done about six times in the twenty-four hours, for the first four or five days, and then two or three times a day until the discharge ceases.

A careful examination should be made of every woman's vaginal discharges in the beginning of labor. If there is leucorrhoea or any pathological condition of the vaginal secretions, the vagina should be thoroughly scrubbed out with tincture of green soap, hot water, and pledgets of cotton, and should then be douched with a bichloride of mercury solution 1-to-2000, a little clear water being employed at the end of the douche to wash out any residual sublimate solution that

might poison the patient, or do harm to the infant's eyes in its descent through the birth-canal.

It should be borne in mind in the conduct of the labor that excessive bruising, long-continued pressure of the maternal tissues, extensive injuries, all conduce to microbic invasion of the parts by reducing their vitality and by affording, through solutions of continuity, a ready entrance into the system. The proper conduct of labor, therefore, is an extremely important item in the preventive treatment of puerperal sepsis.

Finally, in the management of the third stage of labor and of the early puerperium the greatest care should be exercised to evacuate the uterine cavity of all putrescible matter, and to secure as far as possible firm contraction of the womb. The presence of dead foreign matter within the uterine cavity will pretty surely attract saprophytes, and an imperfect involution of the womb will favor the direct invasion of the uterine sinuses and blood-channels by micro-organisms, and the absorption of the products of microbic activity into the circulation and into the lymph-spaces.

The physician should not carry infectious germs upon his person or clothing into the lying-in chamber, and he should be scrupulously careful not to insert pathogenic germs into the woman's vagina in the course of his examinations. If a general practitioner is in attendance upon infectious and contagious diseases, he should either give up obstetric practice entirely, or, if he cannot do so, he should take a full bath and should change his clothing completely before attending a woman in labor.

It is a wise precaution to carry in one's obstetric bag a long linen gown, or a pair of duck trousers and a cheviot shirt. The change of clothing should be made in another room before seeing the patient at all, or at any rate before making an examination.

In the preparation of his hands for an examination the method recommended by Fürbringer is to be preferred. This consists in a ten-minutes scrubbing of the hands with a nail-brush, hot water, and tincture of green soap, followed by a most thorough scrubbing with alcohol, and this followed by immersion of the hands in a 1-to-1000 bichloride of mercury solution for at least two minutes. The examining finger should then be anointed with carbolized vaselin (five per cent.), and in making the examination the vulvar orifice should be exposed by lifting up the

upper buttock as the woman lies upon her side so that the finger can be inserted directly into the vagina without becoming contaminated by being swept over the skin near the anus or pubes while searching for the vulvar orifice. As every examination entails upon the woman some risk of infection, they should be limited in number as much as possible. The best results ever obtained in obstetrical practice as regards both morbidity and mortality have been secured by an almost entire elimination of the vaginal examination, which has been replaced in the practice of some enthusiasts by abdominal palpation, and even by rectal examination. It is unnecessary, however, and is moreover inadvisable, to give up the vaginal examination altogether. Much may be learned by abdominal palpation, so that there is little necessary information to be gained by examining per vagina, but there are some conditions that can be learned in no other way. A few vaginal examinations in the course of labor are therefore indispensable. No harm is done by these if their number is restricted, and if sufficient care is exercised to secure perfect cleanliness of the hand, and to conduct the examination in the way described above.

The nurse should adopt the same precautions in regard to personal cleanliness that have been recommended for the physician. She should not have come from a contagious or infectious case. She should put on fresh clothing throughout for attendance upon the obstetrical patient. She must take a full bath, scrubbing her hair and scalp well with soap and water, and rinsing her hair in a 1-to-1000 sublimate solution, which is then washed off with pure water. Her hands should be carefully prepared according to the method above described before any manipulations of a patient's genital region or of her breasts. It would be her duty, also, in the care of a puerpera, to enforce the sanitary and aseptic regulations already described under their appropriate heads.

All implements to be used about the person of the parturient and puerperal woman should be boiled for at least five minutes. In the case of a few articles that might be injured by boiling water, a bichloride solution 1-to-1000 should be employed for their disinfection; a full half-hour at least being allowed for the immersion, and the bichloride solution being made up with boiled water.

The treatment of puerperal sepsis is both local and general. Locally, a thorough dis-

infection of the whole genital canal is called for in every case of puerperal infection. It may appear unnecessary, and may prove on actual experience to be even harmful, but no one can tell beforehand how necessary this procedure will be. In the vast majority of cases it will be productive of the greatest good. It is only occasionally useless and very rarely actually harmful. It should, as already stated, invariably precede all other treatment for puerperal infection. The method of disinfecting the genital canal may be described as follows: a double tenaculum, a large, dull curette, a placental forceps, and an intra-uterine catheter are boiled for fifteen minutes. The operator disinfects his hands and arms. The patient is placed in the dorsal posture across the bed, with her buttocks resting on a rubber pad. The external genitalia and the vagina are scrubbed with tincture of green soap in hot water, and pledgets of cotton; the vagina is douched with a sublimate solution, 1:2000. The operator then seizes the anterior lip of the cervix with the tenaculum. An intra-uterine douche—sublimate solution, 1:2000—at least a quart, is administered. Then with the curette and the placental forceps in turn the uterine walls are gone over thoroughly in all directions, six to twelve times, till nothing is brought away but bright blood; a second intra-uterine douche concludes the treatment.

If the womb is flabby and large, with a tendency to flexion, so that the drainage of the uterine cavity is not good, he recommends packing the cavity with iodoform gauze. He has found it of advantage in the majority of cases to pump into the uterine cavity by means of a Davidson's syringe and a two-way catheter a mixture of two drachms of iodoform and two ounces of sweet oil.

In addition to cleansing the uterine cavity in the manner described, the operator should take the opportunity of carefully inspecting the visible portion of the parturient tract, and if on the cervix or in the vagina there are false membranes or areas of inflammation and localized infection, these should be carefully treated; best by the application of a strong solution of nitrate of silver, a drachm to the ounce.

It may be necessary to repeat the intra-uterine douches several times—in fact, several times a day for many days; in this case plain water only should be used. Nothing whatever is gained by the employment of strong chemical disinfectants which cannot

always reach and destroy the infecting micro-organisms of the genital tract, but which do have a most depressing action upon the body-cells of the walls of that tract, reducing their resisting power against the invasion of attacking bacteria.

It is rarely necessary to repeat the curettage or the use of the placental forceps. It may be advisable to provide drainage from the uterine cavity by the insertion of a strip of gauze to the fundus. This is only necessary, however, in those cases of flabby, relaxed wombs which fall forward on themselves in such a manner as to prevent the free exit of the lochial discharge.

The general treatment is stimulating. The patient should have as much food of an easily digestible character—chiefly milk—as she can digest, and as much alcohol as she can consume without showing the physiological effects of it. Digitalis will be useful as long as the pulse is above 110; strychnine may be combined with it in suitable cases. To tide the patient over emergencies, carbonate of ammonia in large doses by the bowel, and nitroglycerin hypodermically may be required. Inhalations of oxygen may be of service. Absolute rest and freedom from all disturbances, mental and physical, must be insisted upon, and the patient should be given the best nursing that the family can afford.

#### *A CASE OF ASPHYXIA DUE TO ETHER ABSORBED FROM THE STOMACH.*

LOROT reports in *La Tribune Médicale* of November 25, 1896, the following case:

A girl aged 9½ years was admitted to the Hospital Tenon in a state of asphyxia. The face was pale, the lips blue, and the whole appearance of the patient that of exsanguination. The extremities were cold, the fingertips were also pallid. Auscultation revealed no respiratory sound, no cardiac bruit, and there was absence of the pulse. It was found on investigation that the patient had taken a large quantity of ether internally.

Artificial respiration was resorted to and massage of the precordium was tried, with no result. There was an abundant muco-watery secretion in the mouth and the tongue had been injured by the spasmodic contraction of the jaws. Rhythmical traction of the tongue was resorted to; cold applications were made to the forehead and the neck; flagellations, friction and stimulation of the intercostal nerves were also tried. After about twenty-five minutes a single respira-

tory movement took place. The respirations then became irregular, the heart's action somewhat violent and tumultuous, the pulse became stronger and extremely rapid; color returned to the skin and heat to the extremities. Whenever the treatment was interrupted, however, the respiration ceased and the patient returned to a comatose condition. The conjunctiva was without a reflex, the eyes wide open, and the pupil dilated, but slight tonic movement of the left side occurred. Thus there was a unilateral grimace of the face, contraction of the arm and leg on the left side with tremor; the right side was immovable. These tremors of the left arm ceased on inhalations of ammonia being given. Finally, the patient returned to consciousness with a gradual passing away of the symptoms that we have named. Lorot believes that the method of Laborde—namely, the application of rhythmical tractions of the tongue—saved the patient's life.

#### *TREATMENT OF LARYNGEAL TUBERCULOSIS.*

In an article in the *Cincinnati Lancet-Clinic* of December 5, 1896, S. E. ALLEN states that although a large per cent. of our cases of laryngeal tuberculosis cannot be cured, all can be alleviated, and treatment must have in view the desire to alleviate if a cure cannot be brought about. We must not abolish therapeutic methods, even if a cure is out of the question.

Any general plan of treatment of the affection under consideration can be divided into three heads: (1) The treatment of the general system. (2) Absolute rest of the parts—measures instituted to keep the larynx absolutely at rest. (3) Local measures.

The general treatment is the same as that of tuberculosis elsewhere. By tonic remedies, good feeding, and climatic influences, we seek to strengthen the resistance of the cells to the invasion of the organism; and just as such treatment can bring about a cure of pulmonary tuberculosis, so it can bring about a cure of mild laryngeal disease. The climatic treatment is our mainstay in pulmonary tuberculosis, and I am inclined to believe that it, with the methods considered under headings 2 and 3, will be found to render the greatest service in laryngeal tuberculosis. If the bacilli are deep in the tissues they cannot be reached except by most energetic surgery, and our only hope is that we can increase cellular resistance and prevent further exten-

sion. Fresh dry air and sunlight, proper food, and healthy exercise of mind and body, together with proper local treatment, will often work wonders in this disease.

Absolute rest of the parts will be found one of the greatest aids toward curing laryngeal phthisis. General and local methods will often fail if the patient cannot be made to stop using his voice. This is a point too little insisted upon. Movement of any abnormally irritated part lowers the vitality of the cells of that part, and so movement here depresses cellular vitality and allows increased bacterial development. Use of the larynx in speaking must be stopped, and also those movements caused by coughing. The cough arising from the laryngeal trouble and the concomitant pulmonary disease must be checked if good results are to be expected. This relief can be brought about by morphia, codeia and the like, but such remedies are bound to lower cellular vitality and to undo what we seek to gain by constitutional treatment. There is no surer or better way to relieve the cough of laryngeal tuberculosis than by the use of menthol; one-half to one drachm of a mixture of camphor and menthol, five grains each to the ounce of albolene, injected directly into the trachea from a laryngeal syringe, if possible, or into the larynx alone if we cannot drop the solution past the vocal cords, has a remarkable effect on the cough. If it is impossible to make these injections, a much less marked result can be obtained by inhalation of the vapor of the same mixture. Should the lungs be markedly involved, with considerable purulent expectoration, menthol, guaiacol and albolene make a good injection. The menthol and guaiacol injections have a local antiseptic action, and under the influence of these mild remedies many cases of beginning tubercular ulceration can be cured.

We come now to the consideration of local measures. These can be classified into:

Simple antiseptic, non-irritant applications;

More active germ and tissue-destroying agents, including lactic acid applications;

The use of electrolysis and the galvanocautery; and, lastly,

Excision of diseased tissue with curette or cutting forceps.

Among non-irritant, simple applications the best are menthol inhalations, iodol and iodoform insufflations, and pyoktanin applications. In cases of slight severity, with the best hygienic treatment, these remedies often suffice to bring about a cure. Lactic acid is

properly considered the best remedy for promoting the healing of tubercular ulceration, and is applied in strengths varying from twenty per cent. up to the pure acid. Lactic acid probably has more cures to its credit than any other remedy.

In all cases where we have a tubercular infiltration without ulceration, or where the ulcer is deep, the lactic acid cannot be expected to exercise the healing action which it has on superficial ulcerations, and it is here that surgical procedures must precede its application. It is from a surgical treatment of the trouble that we have obtained the most startling results. Since the introduction of ordinary surgical methods tubercular laryngitis has to a certain extent ceased to be the hopeless, terrible affliction of former years. Up to the year 1883 it was thought that tubercular destruction in the larynx never cicatrized, that such a thing as a cure was impossible. In that year Krause demonstrated on a post-mortem specimen cicatrices he had brought about with lactic acid; the desire to get the lactic acid solution on to the seat of the trouble led to curettement and removal of the infiltration. Excision of tubercular masses and curettement of ulcerated surfaces is, in selected cases, a procedure that cannot be recommended too highly. This, with the subsequent application of lactic acid, has often a wonderful effect.

Relapse and progressive destruction of course are very often met with; nor is this to be wondered at when we remember the nature of the disease. If these methods do not cure in all cases, they nearly always serve to alleviate the distressing symptoms. The excision of an inflamed and sensitive epiglottis or ary-epiglottic fold will relieve dysphagia as nothing else will, and is to be recommended even when there is no hope of a cure. Where the symptoms complained of are not particularly distressing, and from the nature of the pulmonary trouble no hope of recovery can be entertained, aggressive surgical interference can hardly be recommended. Reaction to surgical interference is slight, as a rule, and it is often surprising to see how quickly healing takes place.

When the disease causes marked stenosis it has been found better to perform tracheotomy than to try to remove the obstruction through the natural passages. After tracheotomy the enforced rest often causes a marked subsidence of the infiltrations. Some have even recommended tracheotomy as a means of curing laryngeal phthisis.

In advanced cases we often can do nothing more than alleviate with opiates if pain is constant, with cocaine if pain is present only on swallowing.

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*THE TREATMENT OF PERITONEAL TUBERCULOSIS BY PUNCTURE AND LAVAGE WITH HOT STERILIZED WATER.*

In the *Journal des Praticiens* of November 28, 1896, is an article with this title, in which attention is called to the fact that DEBOVE has employed puncture, followed by lavage with a saturated hot watery solution of boric acid, with success in a number of cases. He has been followed by Caubet and Baylac in similar instances by the employment of puncture and irrigation, except that these latter clinicians have employed sterilized water a little above the temperature of the body. They claim by this means that all the advantages of a laparotomy are obtained without exposing the patient to the dangers of that operation, and that the employment of pure hot water is safer than the use of a liquid containing a medicinal substance. The heat exercises a useful influence upon the peritoneal wall, upon the activity of the leucocytes, and upon the capillary circulation in these parts. Should there be much fluid in the peritoneal cavity before the operation it should be withdrawn by ordinary paracentesis before the lavage is attempted. They also think that this method is particularly valuable in chronic fibrinous peritonitis with ascites.

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*A REPORT ON ANARCOTINE.*

In the *British Medical Journal* of September 26, 1896, SURVEYOR makes a report on this substance.

The work was undertaken to determine the influence of the alkaloids of opium, chiefly anarcotine, on metabolic changes produced in animals. At one time, before the introduction of quinine, this alkaloid was largely used as an antiperiodic. In India, however, as stated by Sir William Roberts in his presidential address before the Pharmacological Section of the British Medical Association, it has now been altogether discarded.

The general impression at present about the value of the drug is that it is a harmless principle of opium. Experiments were performed to determine its effect in diminishing or increasing metabolic changes in dogs. Blood-pressure experiments were also per-

formed on dogs. However, it was found that a subcutaneous dose of the chloride of anarcotine, even to the extent of four grammes, had no effect on the blood-pressure or the heart. The respiratory movements of the animals were not altered. Respiratory changes of gases before, during and after injection of the chloride were studied in mice. It was found that a subcutaneous injection of 0.016 gramme of anarcotine chloride per body weight of 100 grammes produced diminution of the amount of CO<sub>2</sub> given off by the animal; the amount of oxygen absorbed was also slightly diminished. The respiratory ratio was not much altered. The animals lost weight during administration of the drug, which was soon regained on stopping it.

Administration of pure anarcotine to dogs in doses of one gramme produced vomiting within half an hour. The smallest dose required to produce this effect was 0.5 gramme per body weight of five kilogrammes.

Anarcotine chloride (one gramme) produced slight retching in one dog, while subcutaneous injections of the salt up to four grammes in an anesthetized animal did not produce any effect.

It is curious that a perfectly tasteless alkaloid like anarcotine should produce vomiting, while its chloride, which is extremely bitter in taste, can be tolerated to a greater extent.

The chloride was prepared from the alkaloid by the action of just enough hydrochloric acid. The resulting salt was dissolved in distilled water, filtered, evaporated down to dryness, dissolved in chloroform, and crystallized out from the chloroform solution by the addition of anhydrous ether. The crystals were redissolved and recrystallized salt used for the experiments.

As regards the effect of the alkaloid on metabolism, great difficulty was met with in the matter of diet. Some dogs refused to take the ordinary dried meat, so it was ultimately decided to feed them on sterilized meat. Minced meat was weighed in small beakers, and these sterilized at 120° C. in the autoclave. During the administration of the drug the animals lost weight, and the nitrogen absorbed was found to be diminished; in one case it fell to one-third the normal amount. The amount of fat absorbed was also diminished to some extent.

The amount of water excreted as urine did not appear to be regularly influenced, however; as a rule it was increased, and on some

occasions it was found that the total amount of water excreted both as urine and in feces was in excess of the amount taken on the corresponding day. This observation requires further study before one can venture to state anything definite about it. There was slight diminution in the amount of nitrogen excreted by the kidneys.

The metabolic changes after the administration of hydrochlorate of morphine were studied in one dog. The dose given was 0.05 gramme to 0.02 gramme per five kilogrammes body weight. In this case the animal was very restless; it took very little food, and lost weight; the amount of weight lost, however, did not correspond to the nitrogen and fat excreted during the same period. In fact, although very little food was taken, the weight lost was not considerable. This can be accounted for in this case, and also in cases of anarcotine experiments, by the fact that the amount of nitrogen excreted by the kidneys was also diminished to a great extent.

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*THE USE OF SEDATIVES AND HYPNOTICS IN THE TREATMENT OF INSANITY.*

In the *British Medical Journal* of September 26, 1896, OSWALD, in opening the discussion on the use of sedatives and hypnotics in the treatment of insanity, commented on the very different views held as to the usefulness of sedatives by alienists and on the degree and frequency with which they were prescribed in different asylums. He believed that a drug-induced sleep was often bought at too high a price; and he regretted that in the construction of asylums more attention was not paid to specially arranged rooms where all the external causes of sleeplessness would be minimized. He regarded any indication of failure of strength as the chief symptom making urgent the procuring of rest in acute cases, and laid special stress on the necessity for making sure that the absence of sleep was not due to some peripheral irritation. Taking acute cases generally, his experience led him to prefer paraldehyde. It had no bad effects, and it tended to restore the broken sleep-habit. It had a slightly diuretic action as well, and did not depress. He had given it hypodermically in two cases without local inflammation following. It was unfortunate that in the rush for new drugs so many of the older sedatives and hypnotics had been forgotten. How often was conium juice prescribed now, and was digitalis as

often used as its calmative power undoubtedly deserved? He believed it was one of the dangers to guard against—namely, that of falling into the habit of using one or two sedatives to the exclusion of others. Chloral, especially when combined with one of the bromides, was most useful as a day sedative—a term to which he took exception. It might not be as effectual as sulphonal, but its bad effects were fewer. The bromides, when combined with cannabis indica or hyoscyamus, could be pushed to much larger doses than were generally given, and were powerfully sedative. Sulphonal he used as seldom as possible, believing that its action was accompanied in many cases by a destruction of the red blood-corpuscles. The belief that its administration produced a mild dementia was a growing one. Its value in chronic mania was undoubted, but its use tended to mind-weakening; it cut short periods of excitement, but the patients did not regain mental clearness. Morphine was not so useful as opium, and his experience of hyoscine and hyoscyamine was not favorable. He confessed he had failed to come, in a very limited experience, to any definite conclusion regarding the use of these drugs. Useful they were, but not nearly so essential to the treatment of patients in an insane hospital as many supposed. A diminution in the frequency with which they were prescribed would lead to the development of other means for treating the symptoms for which they were given. They were not the best hypnotics and sedatives. These were found in exercise, work, distraction of thoughts, amusement, and such like, but the scope of the discussion did not include these. In the treatment of the insane in private houses their use could often not be avoided, and if they did—as he believed—in many cases retard recovery he saw in that a strong argument for the treatment of mental disease in asylums. In asylums when they had to be used he preferred a pure hypnotic like paraldehyde or alcohol, and in other cases chloral with bromide, or bromide with cannabis indica. Sulphonal he never gave without feeling that he might be setting up a morbid condition over which he would have little control.

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*REPORT ON THE ACTION OF DRUGS ON THE LEUCOCYTES OF THE BLOOD.*

GEORGE WILKINSON, in the *British Medical Journal* of September 26, 1896, records the results of his studies on this subject. He

points out that during recent years several observers have recorded certain changes which take place in the number of the leucocytes of the blood of animals after the injection, either subcutaneously or directly into the circulation, of bacteria, bacterial products, nuclein, peptone, and other substances. Acting on the suggestion of Professor Boyce, he has performed a series of experiments with a number of drugs, which were administered to rabbits by hypodermic injection, with the object of observing any changes that might occur, not only in the total number of leucocytes in the circulating blood, but also in the relative proportion of the mononuclear and polynuclear varieties.

The following drugs have been used in the experiments: Potassium iodide, pilocarpine nitrate, atropine sulphate, digitalin, carbolic acid, turpentine, camphor, antipyrin, quinine hydrochlorate, salicin, and sodium salicylate. With each drug several experiments were made and various doses employed. Blood was obtained by pricking the animal's ear, and after dilution with Toison's solution the corpuscles were counted with the Thoma-Zeiss apparatus, every precaution being taken to avoid fallacy. The corpuscles were counted immediately before, and at various intervals after, each injection; and at the same time cover-glass preparations of the blood were made and afterwards stained, usually with eosin and hematoxylin. From the latter the proportion of mononuclear to polynuclear forms was estimated by counting from 300 to 500 leucocytes.

The general results of the experiments may be stated thus: The first effect of the injection is to cause a diminution in the number of leucocytes per cubic millimeter. The degree and duration of the diminution varies with the drug employed, but with all those mentioned above, unless the dose was very small, its occurrence was recognized when the blood was examined sufficiently early. As a rule it was not of long duration; but a notable exception occurred in the case of one of the experiments with quinine hydrochlorate. A large dose (0.7 gramme) of this drug caused death of the animal two days after the injection; the blood was examined frequently between the time of injection and its death, and on every occasion the scantiness of the leucocytes was very striking. Coincidentally with the diminution in the total number of leucocytes, there was a distinct increase in the proportion of the mononuclear to the polynuclear varieties.

Following the diminution there was observed in the case of all the drugs employed an increase in the number of leucocytes per cubic millimeter. This change did not occur in the above mentioned experiment, in which a very large dose of quinine was administered, but with smaller doses of this drug its occurrence was noted, although, as with salicin and salicylate of sodium also, the degree of increase was slight in comparison with that which followed the injection of the other drugs. With nearly all of them the increase was a much more evident phenomenon than the preceding diminution, and was of much longer duration. It was further constantly distinguished by the fact that the polynuclear leucocytes were relatively more increased in number than the mononuclear forms.

With atropine, and also with pilocarpine, a series of injections were made on one animal at intervals of twenty-four hours for several days. The leucocytes were counted immediately before, and at frequent intervals after, each injection. The first injection of each series was followed by a diminution in the leucocytes per cubic millimeter, which again was rapidly succeeded by a marked increase. The latter had not passed off at the end of twenty-four hours, when the next injection was given, but the sudden fall which followed each injection was very striking, as were also the coincident changes in the relative proportions of the mononuclear and polynuclear leucocytes. Indeed the alterations were so distinct that they could be recognized almost by a glance at the stained films, which were made at the same time, without counting at all. These changes in the number and relative proportions of the leucocytes are analogous to those which have been described by several observers as occurring after the introduction into the circulation of bacteria, bacterial products, etc. Sherrington has described similar changes in the blood of dogs and cats as the result of acute local inflammation.

The writer has also observed certain changes in the structure of the leucocytes under the influence of repeated doses of pilocarpine. Two grains of this drug was given hypodermically every twenty-four hours for seven days to one rabbit, and for fourteen days to another. Numerous cover-glass preparations of the blood were made at different times of each day, and they were stained in series by different methods, care being taken that all the specimens of a series were exposed to stain-

ing fluids of the same strength and for the same length of time. These specimens exhibit a remarkable change in the structure and staining reaction of the small oxyphile leucocytes. The cells of this variety in the normal rabbit are full of very definite granules which stain readily with eosin and other acid dyes. Under the influence of the repeated doses of pilocarpine the granules became gradually less distinct, and eventually the protoplasm appears perfectly homogeneous and takes up the stain very feebly. In one of the animals this change was found to be very pronounced in so short a time as fifteen minutes after the first dose of the drug. The reaction of the nucleus of this variety of leucocyte to nuclear stains becomes diminished in a corresponding degree. On the other hand, the large oxyphile leucocytes with coarse granules (Ehrlich's eosinophile cells) show no change whatever, and stand out in marked contrast to those of the other variety. The red blood-corpuscles are also unchanged.

#### THE TREATMENT OF VOMITING IN TUBERCULOSIS.

In the *Revue de Thérapeutique Médico-Chirurgicale* of December 1, 1896, MATHIEU is reported to have recommended the employment of the following treatment in this troublesome condition. He first points out that the vomiting largely depends upon the fact that the stomach is reflexly irritated from the pneumogastric nerve by the diseased condition of the lung. For this reason small pieces of ice or one to two teaspoonfuls of chloroform water may be given every ten minutes for several days, to allay gastric irritability after food is taken. After the meal the following mixture may be given:

℞ Menthol, 3 grains;  
Syrup, 5 ounces.

The chloroform, however, constitutes the most efficacious form of medication.

In the discussion which followed Mathieu's paper, Ferrand stated that he had gotten the best results from diminishing the sensibility of the pharynx by the application of ten-per-cent. solutions of bromide of potassium in glycerin.

#### SUCCESSFUL CÆSAREAN SECTION AFTER DEATH.

There can be no doubt that the aim of the obstetrician is to save both mother and child. When there is any difficulty about the rescue

of both, the mother must first be considered. When the mother is already dead the child is usually dead also, but this is not invariably the case. The medical attendant should certainly save the child if he can, but for obvious reasons he may be prevented, especially in private practice. The patient's relatives may well feel more respect for a corpse than solicitude for an unborn infant. Yet it is well to remember and to remind them that the child may be saved. In the obituary notice of Dr. Harley, mention was made of his success in saving a child after the mother's death. The patient was suffering from mitral obstruction and aortic regurgitation; there was anasarca, but it would appear the urine had only been tested once, ten days before death, and no albumen was detected. The kidneys were found "full size and quite healthy." On April 25, 1850, the woman, in the beginning of the ninth month, had a fit of dyspnea in the kitchen of the Edinburgh Royal Maternity Hospital. Harley, then house surgeon, diagnosed spasm of the glottis, and performed laryngotomy. The dyspnea increased, and he was beginning the operation of tracheotomy when the patient died. He immediately tore through the patient's dress, opened the abdominal wall and the uterus, seized the child by the leg, and delivered it. It was in a state of suspended animation; cold water, inflation, and artificial respiration revived it, and the cord was cut. The child was a male weighing 6 pounds 12 ounces, and measuring 18½ inches. Not more than twenty minutes elapsed from the time the patient was seized in the kitchen till all was over, including the stitching up of the abdominal wound and the removal of the mother's body. The child not being premature was easily reared, and grew up to manhood. A very interesting case of successful post-mortem Cæsarean section has recently been reported by Sandberg, of Christiania. He operated under very unfavorable conditions, as the mother had died of eclampsia, an affection very perilous to the fetus. The patient was a primipara aged thirty-six, and expected her confinement on September 20, 1895. In July of the same year anasarca set in. On August 18 she died comatose, after numerous attacks of eclampsia. Four minutes after the heart sounds had ceased, Cæsarean section was performed. The uterus was opened after the escape of much ascitic fluid. The child was born asphyxiated, but breathed well a quarter of an hour after delivery. It was under four pounds in weight, and not sixteen inches long. Placed



in an improvised couveuse, it was fed with a mixture of one part milk, three parts water, and four per cent. sugar of milk. The infant was successfully reared, and was living in October, 1896, when the report was published. This remarkable case of the delivery and rearing of a truly posthumous child is a triumph for the couveuse as well as for the well-timed operation for which Dr. Sandberg deserves credit. We have already noted its ethical bearing, an interesting question for medical jurisprudence. As Spiegelberg has pointed out, Roman law directed that before the corpse of a pregnant woman was buried Cæsarean section should be performed. By Prussian law, the performance of Cæsarean section on a woman who has died during pregnancy is left to the judgment of the medical attendant in the particular case. Löwenhardt and others advocate the operation when the mother is in *articulo mortis*, but though this doctrine is based on a high principle, it is contrary to higher sentiments, and does not find favor either with the profession or the public.—*British Medical Journal*, Nov. 28, 1896.

#### THE CONTRAINDICATIONS TO THE USE OF THE SALICYLATES IN ACUTE ARTICULAR RHEUMATISM.

CHASSEVANT contributes a paper with this title to *La Semaine Médicale*, No. 54, 1896. He points out that according to Jaccoud the salicylate of sodium is contraindicated in those cases of acute articular rheumatism in which there is a predominance of visceral complications. Under these circumstances Jaccoud prescribes tartar emetic in large doses, and if necessary adds opium to the dose in order that the patient may withstand it, thereby checking the diarrhea and tendency to vomiting. The result of the use of this remedy is usually a fall in the fever, the quieting of the nervousness, and never when it has been instituted has Jaccoud met with pericarditis or cerebral accidents of a serious character.

Chassevant asserts that a number of other physicians sustain this clinician in his assertion that the visceral phenomena are benefited. He quotes Donald Hood's paper, published in 1881, in which 350 cases of acute articular rheumatism were treated by the salicylate of sodium. Out of these 350 cases, 241, a proportion of 80, suffered from cardiac complications.

Smith in 1882 published the statistics of 1724 patients suffering from polyarticular

rheumatic fever treated in various ways. Of this number five per cent. had cardiac complications.

#### THE USE OF ENTEROCLYSIS IN THE GASTRO-INTESTINAL AFFECTIONS OF NURSINGS.

An interesting article upon this topic is contributed by THIERCELIN to the *Revue de Thérapeutique Médico-Chirurgicale* of December 1, 1896. After a historical review of those who were the first to employ this method he passes on to a consideration of its therapeutic effects, its indications and its contraindications. He believes that it is indicated in cases of obstruction of the bowels and in cases in which fermenting materials have been retained in the intestine, whether this condition be acute or chronic, although he believes that it is particularly useful in the chronic cases. By the use of enteroclysis under these circumstances the fermenting material is removed and the poison which is formed thereby is washed out of the bowel. Should fever accompany the infectious process cold water may be employed for the injections, using as large a quantity as one or two quarts. These copious irrigations of the bowel are one of our best aids for the relief of the hyperpyrexia which seems to menace the child, and speedily cause a fall of temperature amounting to 2° to 3°. On the contrary, should the affection be accompanied by collapse and a fall of temperature, the employment of water at a temperature of 100° to 102° or 102.5° is generally useful in raising the temperature of the patient to the normal. When fever is present the injection improves the condition of the pulse and the action of the heart, and it is probable that a sufficient quantity of the liquid is absorbed to increase the function of the kidneys and liver, thereby producing a true lavage of the entire system. The liquid which is employed in different morbid states consists of water which has been carefully sterilized by boiling and to which common salt has been added in the proportion of 100 grains to the quart of water. Should there be present a follicular enteritis it is well to use a decoction of marshmallow root. Other authors recommend in cases of acute infection of the bowel in nurslings the employment of a solution of boracic acid; and still others, notably Doria, a solution of lactic acid. It is also to be remembered that alkaline injections of large quantities of water are of value in the treatment of catarrhal

jaundice. The total quantity of the injection varies with the age of the patient. Rarely in nurslings do we exceed the employment of two quarts, but in adults as much as five quarts of liquid may be used once or twice a day. Contraindications to the employment of enteroclysis are cardiac affections and ulceration of the bowel to such an extent that there is danger of perforation, although it has been claimed by some physicians that they have gotten good results from the employment of enteroclysis in the treatment of typhoid fever. Thus Doriac has obtained a rapidly beneficial influence by the use of large injections of a hot solution of creolin.

In cases of intestinal obstruction, enteroclysis is useful but must be employed with caution. The apparatus which is necessary for this treatment is a reservoir capable of containing two quarts of liquid, to which is attached a long rubber tube, at the extreme end of which is placed a gutta-percha nozzle about one foot in length, the diameter of which varies with the age of the patient. This nozzle or catheter is gently introduced into the bowel for a considerable distance and then the solution is allowed to flow very slowly through it into the bowel, the patient lying in the horizontal position, preferably upon the right side. The anal opening should be closed around the catheter by digital compression, and it is not to be forgotten that the greatest care must be exercised to see that the water flows slowly. Should straining come on the flow must be stopped until the spasm of the bowel ceases, when it may be resumed.

#### TAPPING THE PERICARDIUM.

Mr. AUSTIN MELDON read a paper on this subject before the Section of Surgery of the Royal Academy of Medicine in Ireland, which is reported in the *British Medical Journal* of December 12, 1896. In 1663 Riolanus first proposed paracentesis pericardii. One hundred years later Senac stated that the operation was possible, and still later Van Swieten suggested a method of performing it. In 1819 Romero, of Barcelona, operated with perfect success. Jowett, of Nottingham, operated in 1827, and Schuh in 1839. At present just 100 cases had been recorded, and he believed that many more had occurred which had never been published. Out of all these cases, only once had the operation proved fatal. In this unsuccessful case the right ventricle was lacerated by the trocar. Some

others had died soon after the operation, but these were cases that were moribund at the time it was undertaken. The remainder, without exception, were relieved, and many of them cured. Under these circumstances it was clearly the duty of the surgeon, whenever death was imminent from cardiac pressure, to resort to tapping. Experience, too, had shown that the operation is not attended with great danger, and certainly in cases of effusion from rheumatic pericarditis there was every prospect of recovery. He had seen several cases within the last thirty years in which he was convinced that the fatal termination was due to pressure of fluid in the pericardium, and might have been averted by drawing off the fluid. On one occasion he was able to verify this opinion by a post-mortem examination. He then gave details of two successful cases of tapping the pericardium. The first case occurred some years ago. The patient was a woman, aged fifty-eight, and seemed to be dying from increasing hydrops pericardii. The instrument he selected in this preantiseptic period was a long hydrocele trocar, which was washed well in very hot water. An incision was made into the skin two inches from the sternum in the fifth intercostal space, and in order to make it valve-like, the skin was drawn up to the full extent possible before making it. A trocar was with some difficulty inserted, and on withdrawing it fluid of a dark color followed. When eight ounces had been withdrawn the fluid flowed very slowly; the instrument was therefore taken out, and the wound covered with flexible collodion. As the patient appeared faint, a little brandy and ammonia was administered. An hour later all difficulty of breathing had disappeared, but although the patient expressed herself completely relieved, a very slight cyanotic condition remained. On the following morning this was gone, and her pulse was strong and regular. She left the hospital five weeks later in perfect health. The second case was that of a man aged twenty-six, to whose bedside Mr. Meldon was summoned on March 5, 1894. He was suffering from rheumatic pericarditis, with great difficulty of breathing, precordial dulness was greatly increased, and cyanosis and epigastric distress to a considerable amount were also present. The pericardium was tapped, and almost immediately the patient's breathing improved to such an extent that when  $5\frac{1}{2}$  ounces had been removed the needle was withdrawn. Cyanosis, dyspnea, and epigastric distress completely

disappeared in a few hours. The fluid, unlike that in his previous case, was a healthy serum. On August 31, 1894, a case occurred in the practice of Dr. Joseph Redmond in which 22½ ounces of dark-colored fluid were removed, and seven days later 27½ ounces were also taken out. In this case, which recovered perfectly, a drainage tube was subsequently inserted. Dr. Patrick Hayes was the surgeon who operated. The statistics of paracentesis pericardii showed that the fifth left intercostal space, at a point one inch to the left of the sternum, was the most suitable place for puncture. The selection of the instrument would likewise seem of some importance. If too small a cannula were used it was apt to become plugged with flakes of lymph. Mr. Meldon showed two instruments which had been made for him by Messrs. Smith & Sheppard. One was to be used with and the other without an aspirator. Both became arrested when two inches of the instrument had passed into tissues, and then any further depth was obtained by a screw motion. This latter is the suggestion of Dr. Woods. The author believed that when there was any fluid in the pericardium it was quite safe to plunge the trocar in fully two inches. He concluded by quoting Dr. Samuel West's conclusions to his able article in the *Medico-Chirurgical Transactions*, and which he believed should be adopted by the profession.

In the discussion which followed the PRESIDENT said the principal questions for consideration were as to the place where the puncture should be made, and as to the best way of dealing with the conditions that occurred when the disease became purulent.

Mr. LENTAIGNE said the operation was comparatively easy, and the results were likely to be satisfactory. In two cases which came under his notice not long ago the operation, which would very probably have given relief, was not permitted. Both patients were consequently allowed to die from what he might call simple heart suffocation, resulting from extreme distention of the pericardium.

Dr. FRASER recalled a case of pericardial effusion in which after death a measured gallon of fluid was drawn off. That case might have been beneficially treated by operation. He had, however, had fair success in treating pericardial effusion in rheumatic cases medically. He did not know what would be the use of tapping in the case of a "pineapple" heart surrounded with three inches of lymph. Again, there was a class of cases of rheumatic fever in which pericarditis

occurred, followed by delirium, and in which the effusion was not at all in proportion to the severity of the cardiac symptoms.

Sir THORNLEY STOKER said the great crux was how the case was to be dealt with when there was pus in the sac. When there was only serum, after it had been removed a reactionary condition was set up, and no further accumulation of serum occurred. But where there was pus, although the heart was relieved by the removal of it, a secretion of pus would continue where there were ulcerated or diseased surfaces; and the removal of it in the first instance was almost useless, unless means for subsequent drainage were provided. He thought the introduction of a trocar and cannula to such a depth as two inches unnecessary, except in the case of a patient of exceptional obesity.

Professor BENNETT gave particulars of a case in which, very early in his experience as a hospital surgeon, he was asked to tap the pericardium of a patient. He was unable to satisfy himself that there was fluid in the pericardium. As the man was in great distress he opened first the basilic vein on one side, and then that on the other. After there had been a full flow of blood from the second opening the symptoms were relieved. The man fell asleep, and the cyanosis entirely disappeared. After three or four days the man had a second attack of the same kind. He was not in attendance at the time, and in two or three hours the man died. He made a post-mortem examination, which disclosed an adherent pericardium and huge heart; and there was no doubt that if he had tapped him with a trocar and cannula he would have killed him on the spot.

Mr. WHEELER said he had had experience in two cases. In one three separate tapping operations were performed, fluid coming each time, and on the third tapping there was pus. The form of operation adopted was to dilate an opening with a forceps, pass in a cannula, and pass through it a very fine probe. The patient made a rapid recovery, was well in three months, and was perhaps alive now. In the other case tapping was performed once with an aspirator. The patient got quite well.

Mr. TOBIN said the difficulty as to depth might be met by using an aspirator and needle; and as soon as the needle was inside the skin the aspirator should be turned on. The moment the needle entered the pericardium the flow of fluid would show that it need be pressed no further.

Sir WILLIAM STOKES said it had never fallen to his lot to perform this operation, but it struck him as somewhat remarkable that in the cases mentioned by Mr. Meldon a single tapping should have been sufficient. In many cases it was sufficient; but they knew that cases of serous effusion occurred in which frequent tapping was necessary.

Mr. HEUSTON said when they were sure that there was only serous effusion they would be justified in using the trocar or aspirator in such a way as Mr. Meldon had adopted with such excellent results. But there were other cases in which the only proper thing for the operator to do was to make a free opening down to the pericardium, so as to be able to see what he was doing. In suppurative pericarditis it was absolutely necessary to make an incision at an early stage.

Mr. MELDON, in reply, said the position of the patient was of great importance in determining the depth to which the instrument should be inserted. In doubtful cases he would follow Mr. Tobin's suggestion. Selecting a No. 1 needle, and having created a vacuum in the aspirator, the instrument should be pushed in until the eye is covered, and the stop-cock then turned on. The needle might now be pushed in to a reasonable distance in search of fluid. Even should the heart be touched by such a small instrument, it would not be so very serious as has been stated, especially as the left ventricle has been designedly punctured, and the patient relieved by the operation. He was not aware of any case of rheumatic pericarditis in which a second tapping was required. The patient in the second case was kept in hospital for five weeks after the operation, because it was thought that all the fluid had not been drained off, but it never collected afterwards. As to a second tapping being more dangerous than the first, he had never tapped a second time, so that he could not say whether it was or not. Statistics did not show it to be so. There were two special points in reference to the signs of pericardial effusion to which he would draw attention. The first manifestation was increased broadening of the cardiac dulness at the lower portion, first to the left and then to the right, until there was absolute dulness in the fifth intercostal space in the region named by Ebstein—the cardiac hepatic angle. The second symptom was the occurrence of intermission of the pulse during inspiration at a time when the heart is beating without such intermission. Most of the other observations

had reference to purulent pericarditis, which was not treated of in this paper, but he quite agreed with the opinions expressed that this condition was best treated by incision and drainage.

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**TREATMENT OF EPITHELIOMA OF THE  
FACE BY THE APPLICATION OF  
METHYLENE BLUE AND  
CHROMIC ACID.**

According to the *Revue de Thérapeutique Médico-Chirurgicale* of December 1, 1896, DU CASTEL has reported very good results from the employment of these drugs for this condition, when extirpation of the part which is affected is impossible. The ulceration is first softened by means of the application of a poultice of potato containing corrosive sublimate in the proportion of 1:100. Loose, easily disconnected tissues are to be removed with the galvano-cautery, and after this has been done and the part has been thoroughly cocainized the following solution is employed by means of a wad of cotton and forceps:

- ℞ Methylene blue, 15 grains;  
Alcohol and glycerin, 75 minims.

The parts which are stained by the methylene blue are then touched with chromic acid solution and immediately afterwards the application of blue is repeated. Finally the part is dressed with compresses wet with sublimate. The applications are repeated at intervals of two or three days, and usually in a month cure, or at least much benefit, will be manifested.

Du Castel believes that the application of methylene blue constitutes an excellent method of treatment, and that it exercises an incontestably advantageous influence over superficial epitheliomas; in addition it is entirely inoffensive and harmless. Of course it does not compare in usefulness with operative procedures where they can be undertaken.

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**THE TREATMENT OF SYPHILIS BY IN-  
TRAVENOUS INJECTIONS OF  
MERCURY.**

In the *British Medical Journal* of December 12, 1896, ERNEST LANE writes interestingly of the plan of treating syphilis by intravenous injections of mercurial solutions and tells us that it was originally suggested by Baccelli in 1893, and has since been carried on by many Continental surgeons: in Italy by Jemma, Colombini, Nieddu, Cam-

pana, and Bruni; in Germany by Görl, Neumann, and Lewin; in France by Abadie; and in Russia by Stoukovenkoff and Kusel.

Having charge of all the male wards at the only hospital in London devoted to the treatment of venereal diseases, the writer has had unusual opportunities of giving a fair and impartial trial to any novel method of treatment; and, with a view of estimating the value of this plan, he has systematically adopted it in every case of syphilis which has come under his care in the London Lock Hospital during the last nine months, and he states with conviction that he has formed a very favorable opinion as to its merits, and believes that, with certain reservations, it compares favorably with other methods of treatment, whether it be by inunction, by intramuscular injection, or by internal medication, its special feature being the rapidity with which patients can be brought under the influence of mercury.

The preparation he has utilized throughout has been cyanide of mercury in one-per-cent. solution, and the amount used at each injection was usually 20 minims, or about  $1\frac{1}{4}$  grammes, though in some of the more severe cases he commenced with double this dose for the first one or two injections. At first the injections were employed every other day, but after a short time he decided to introduce them daily. A loop of bandage is first tightly applied round the upper arm, and selection is made of the most prominent vein in the neighborhood of the elbow-joint; the skin in that region is rendered aseptic in the customary manner, and the needle is thrust into the vein, the syringe filled with the solution being attached to it; the bandage is then removed, and the syringe is emptied into the vein and then rapidly withdrawn; the finger is placed on the puncture for a few seconds, and the operation is complete.

As will be pointed out later, when dealing with the advantages of this system, it is absolutely painless, and with ordinary precautions perfectly devoid of danger.

The number of cases treated amounted to seventy-six, and the number of injections made was upwards of one thousand. These injections were carried out by the writer's house surgeons (Dr. Byles and Mr. Chopings). The cases treated covered a very wide field, and embraced nearly all the possible manifestations of the disease, from the simple and uncomplicated case to severe tertiary ulcerative lesions of skin and mucous membranes, malignant syphilis, condylomata,

iritis, and chronic and relapsing syphilides. The number of injections necessary varied from forty-six to four.

As a result of the treatment fifty patients were relieved, and by relieved is meant that they left the hospital absolutely free from syphilitic manifestations; sixteen improved under treatment, but still presented some traces of disease on their departure; four either refused to undergo the treatment, or had to be discharged from the hospital for misconduct; and in six instances the treatment had to be suspended owing to the impossibility of bringing the veins into sufficient prominence to allow of the injections entering them with any certainty, but in several of these cases great improvement was noted before the treatment was discontinued. It is a perfectly easy matter to determine if the injection has missed the vein by the pain, swelling, and bruising which shortly supervene, whereas the injections if properly effected are followed by no discomfort of any kind; moreover, the sensation produced by the needle moving freely within the lumen of the vein differs widely from that which is imparted should it only have entered the cellular tissue. As a rule very little inconvenience was experienced by these patients in whom the injections missed the vein, but in a case in which the injections were made into the dorsal veins of the foot, which were somewhat varicose, a skin slough shortly supervened, leaving an ulcer which resisted treatment for some time. The vein usually selected was the median basilic, and no appreciable change could be detected in its walls, though in one case as many as twenty-three injections were introduced into each arm. As previously stated, the patients submitted to this treatment were all males, and it is hardly necessary to point out that, in dealing with women, greater difficulties would be encountered owing to the smaller size of their veins.

All the patients under the writer's treatment were admitted into the wards of the hospital; still he sees no objection to the treatment being carried out in the out-patient departments. There was no selection of suitable cases, but every syphilitic patient who presented himself was submitted to the intravenous injections, whatever his bodily state, and a considerable proportion had resisted previous treatment in the out-patient department, and were transferred to the wards of the hospital in consequence; many of them were in a most unfavorable condition, being

broken down by exposure, intemperance, and privations; nor were the patients very amenable to hospital discipline, and several of them left while still manifesting active signs of disease, whilst others had to be dismissed owing to breaches of regulations. In every case the diagnosis was made absolutely certain by the appearance of some secondary manifestation, and the treatment was never commenced until the nature of the case was satisfactorily proved. In a few cases diarrhea supervened during the treatment, but these attacks were transitory, and were possibly due to other causes; in some instances gingivitis occurred, but it was not so marked as after other methods of mercurial administration, and in no case was salivation noticed; the hygiene of the mouth was carefully attended to, and alum gargles were employed two or three times a day. In a few instances polyuria and very slight albuminuria were observed after the first or second injections, but these soon disappeared and did not necessitate any modification in the treatment. The only other remarkable feature to be recorded is that many of the patients experienced a metallic taste in the mouth immediately after receiving the first few injections.

The advantages of intravenous injections may be summarized as follows: They are absolutely painless, in which respect they are in direct contrast with intramuscular injections; the functions of the digestive tract are not interfered with; the doses of the mercurial salt are small, are certain of absorption, and can be easily regulated to the varying susceptibilities of different individuals; with ordinary precautions the treatment is perfectly safe, and even if the vein is missed little or no inconvenience is caused thereby; the resulting improvement is certain and rapid, and consequently it would seem to be indicated in cases of cerebral syphilis. His experience does not warrant him, he states, in offering an opinion as to whether this treatment is followed by relapses, but so far he has not met with any. The only real objection is the difficulty experienced in some instances of bringing the veins into sufficient prominence, and in a certain proportion of cases, especially among women, this is an insuperable obstacle. In conclusion, he is of opinion that in intravenous injections we have a valuable addition to our antisymphilitic therapeutic agents, though the plan is one which obviously cannot be recommended as a routine in practice.

#### OPERATION AND CURE OF A CASE OF ADDISON'S DISEASE.

A malignant retro-peritoneal tumor was diagnosed in the case of a woman presenting all the symptoms of Addison's disease. When removed it was found to be a suprarenal capsule in a state of tuberculous degeneration. All the various symptoms disappeared completely after the operation, and the patient has enjoyed good health ever since. There were no organic lesions except this tumor and an old tuberculous focus in the lung. It must be evident, therefore, that the condition of the capsule was responsible for the development of the disease; hence the removal of one or both capsules in Addison's disease seems to be indicated. The operation is not difficult, as a tubercular capsule is more easily separated from neighboring organs than a sound one.—*Zeitschrift für Klinische Medizin*, No. 2; *Journal of American Medical Association*, Dec. 26, 1896.

#### CAUSE AND PREVENTION OF SUPPURATION OF STITCHES.

Some recent writers attribute the occasional suppuration of the stitches in carefully performed operations to the presence normally of certain pathogenic micro-organisms in the underlying layers of the derma, which cause suppuration when exposed to the air by the wound. REMLINGER even asserts that most of the micro-organisms found in the blood drawn from the finger are derived from the lower layers of the skin. His statements are revolutionary in regard to the conclusions we have been drawing from inspection of a single drop of blood in infective disease. We know that the flora of the superficial layers is extensive, but he announces that he found the *staphylococcus albus* (twenty-three times), *aureus* (eleven times), and *citreus* (fourteen times), the *streptococcus pyogenes* (eight times), and the *coli bacillus* (five times), in his experiments on fifty perfectly healthy men, taken with a sterilized needle from the deeper layers of the derma. The only means to avoid error in examining the blood is to draw it from the deeper tissues with a needle not only sterilized but inserted while still red-hot. The logical inference is that surgeons should make their incisions with the thermocautery in order to destroy these intracutaneous germs, but the same effect is secured by a much simpler method, the disinfection of each stitch with alcohol, as E. Blondel announces in the *Journal de Médecine de Paris*.

in an able review of the subject and the latest theories. He has revived the Hippocratic practice of bathing wounds with wine, as taught by Theodoric and Mondeville, and applies it with invariable success. Especially in total perineorrhaphy, which is so difficult to perform with perfect antiseptis, he has secured results far surpassing any previous achievements. He makes as few stitches as possible in the lower layers, and before drawing them tight he wets them and the edges of the wound with ninety-per-cent. alcohol, and sponges the tissues with a cotton pad dipped in it. Each suture is treated in the same way, and the final suture is sponged with strong alcohol and then dusted with iodoform or equal parts of dermatol and aristol, repeated every second day afterward. Alcohol dries the surfaces better than any other substance; its effect on grease is also a factor in the result, and it has a coagulating effect on the serum and thus favors cicatrization.—*Journal of the American Medical Association*, Jan. 30, 1897.

#### INDICATION FOR THE USE OF THYROID EXTRACT IN GYNECOLOGY AND OBSTETRICS.

CHERON (*Revue Médico-Chirurgicale des Maladies des Femmes*, November 25 and December 25, 1896) holds that thyroid extract is an excellent remedy in threatened abortion with hemorrhage, and is valuable in preventing the arrest of uterine involution after childbirth, and that it is potent against the premature return of the monthly periods. Moreover, it is a valuable galactagogue.

Thyroid extract in other words stimulates the mammary secretion, whilst it lessens functional activity of the uterus. In gynecology it has proven valuable in the control of all forms of uterine hemorrhage, whether this be due to endometritis, tumor, or lesions of the adnexa.

The contraindications to the employment of the drug are: tuberculosis, since this seems to be stimulated rather than arrested. In heart disease, even though thyroïdin is strongly indicated, it should be administered with the utmost care and should be stopped at once upon the first suggestion of tachycardia. Symptoms of thyroid intoxication are tachycardia, oppression, exophthalmos, and irritability. In certain cases the drug produces rapid emaciation. Sometimes gastric vertigo has been observed. Because of the difficulty experienced in procuring the fresh

gland and the repugnance which patients exhibit in consuming it, it is well to administer it in the dry form prepared by druggists—this may be obtained in tablets, pastilles or capsules—in doses of  $1\frac{1}{2}$  grains twice daily before meals. After a month there should be an interval of eight days during which the drug is discontinued, followed by a three weeks' course of the medicine. If indications still exist for its employment a rest of two weeks is given, followed by two weeks of the drug.

#### ALEXANDROFF'S SIGN FOR EARLY DIAGNOSIS OF COXALGIA.

Beside the usual symptoms of incipient coxalgia, ALEXANDROFF (*Presse Médicale*, Dec. 9, 1896) insists on the importance of two additional signs, the atrophy and fatty degeneration of the muscles and bones, and especially the hypertrophy of the subcutaneous cellulose-adipose layer, which exists in every stage of the disease from the first and increases with the gravity of the case. In advanced stages the hypertrophy extends throughout the whole member. This is the cause of the effacement of the fold between the thigh and buttocks (*pli fessier*), and the difference in this respect between the sound and the affected thigh is very evident—as much as one and a half to four millimeters in some cases. Alexandroff has invented a special instrument, the adipometer, resembling Weber's compass, to measure the thickness of this subcutaneous layer. The movable portion of the apparatus slides on a graduated plate and a spring near the handle allows a pressure of five to ten grammes. He has been using it for six years and states that atrophy of the member coinciding with hypertrophy of the fold is one of the most important signs by which to recognize tuberculous osteoarthritis before any other symptoms have appeared, while the absence of these trophic troubles is conclusive evidence of the non-existence of a tuberculous lesion of the coxo-femoral articulation, even when it is indicated by other symptoms.—*Journal of the American Medical Association*, Jan. 30, 1897.

#### ABSCCESS OF THE LUNG.

W. P. NORTHRUP (*New York Medical Journal*, Jan. 16, 1897) reports a case of abscess of the lung in which operation was attended by prompt recovery. The patient was an English woman, aged twenty-three, waitress.

On admission to the surgical division on September 26, 1895, her temperature was 104°, pulse 125, respiration 32; there was extreme dyspnea, and the heart's action was very feeble. Physical examination of the left lung was negative. Of the right: behind, râles over two-thirds, indifferent in quality, occasional; slight dulness over lower two-thirds, vesicular breathing heard close under the ear, no bronchial element to voice or breathing. Nothing heard over the posterior or post-lateral aspects to give any clue to the diagnosis; certainly could not suggest a source from which such a quantity of expectoration could come as the patient brought up. Anteriorly at apex there were exaggerated pulmonary resonance and respiratory sounds. All positive physical signs were from the third space downward; over this there was flatness, continuous with the liver to the free border of the ribs. The level of flatness gave the impression of a liver crowded up to the third space. The line of flatness was straight and sharp from the sternum to the anterior axillary line; here it became indistinct, apparently dipping deeply inward and turning downward to the liver flatness. It was as though a quart water-bag had been shoved in from under the sternum, crowding the lung upward, backward, and toward the axillary line. Over this area there was flatness continuous, absence of all respiratory sounds, no bronchial voice, and there were no râles or friction sounds; it suggested the signs one gets where sarcoma has produced a solid tumor in the mediastinum or root of the lungs. The heart was not crowded from its normal position, nor was the liver displaced downward.

The question which first presented was whether this was encapsulated empyema emptying itself through the bronchial ways, or abscess in the lung. It was at first thought to be probably the former, but when it came to exploratory puncture the opinions had rather turned to the second. Incidentally the site and manner of puncture indicated the diagnosis entertained.

The patient was assisted to sit up in bed, the right forearm bent over the top of the head. A long, large-calibre exploring needle on a piston syringe was used. The needle entered at a point just posterior to the breast, about the anterior axillary line, on a level with the third space (at sternum). It was then directed, not toward the superficial flat area, but deep, and as near as possible toward the root of the lung, and thrust in up

to its limit before drawing the piston. When the air was exhausted the barrel promptly filled with thick, stinking pus.

This did not of course distinguish between an encapsulated empyema lying in the position of the water-bag—that is, touching the chest-wall in front and extending deep along the mediastinum and in the direction of the root. The sputum was examined repeatedly for tubercle bacilli and actinomycosis rays without success. The nature of the process was never determined by exact test.

The diagnosis was deep-seated pus in the right lung, either encapsulated interlobar empyema or pulmonary abscess near the root.

Operation was performed under ether anesthesia. Several exploratory punctures were made with a large needle below and to the outer side of the right breast, but no pus was found. An incision two inches long was then made over the sixth rib, below and just external to the right breast in the anterior axillary line. A portion of the rib an inch and a half in length was excised and an entrance thus gained into the pleural cavity, which was found free from fluid of any kind. This exposed the vault of the diaphragm, and superior to this, but not in contact with it, was felt the lung, consolidated, contracted, and occupying the upper and inner half of the right thoracic cavity. The incision was carried upward and backward along the rib into the axilla and an additional two inches of rib excised. The finger was then swept around the lung, which was seen and felt to be firmly adherent to the superior internal and anterior wall of the right chest. Except at the apex, however, there were no adhesions toward the external wall, and the contracted lung was at least two inches distant from that part of the chest-wall where the incision had been made. A large exploring needle was plunged directly into the centre of the lung, and at the depth of two inches pus appeared in the syringe. The needle was left *in situ*, and along it an incision was made by scissors through the consolidated lung tissue until the abscess cavity was reached, when about three ounces of thick and very fetid pus escaped. The cavity was freely opened, and the finger passing into it broke up a number of trabeculae and pulled out a long strip of sloughing tissue with a very foul odor. A soft spot being felt in the internal wall of the abscess, the scissors, guided by the finger, was plunged into this and entered another cavity from which there



was an escape of an ounce of pus of a similar character. This cavity was also freely opened, and all bands of tissue broken up by the finger. The hemorrhage from the incisions in the lung was insignificant and needed no mechanical procedures for its arrest. The cavities were rubbed, and all loose and broken-down tissue was swabbed away with gauze sponges. No irrigation was employed; strips of iodoform gauze were packed into the cavities alongside of two soft-rubber drainage tubes. The ends of the strips and tubes were brought out through the opening in the chest-wall and a copious sterile dressing applied. Severe shock followed, and for several weeks the patient remained in a very critical condition.

During December the gain was very rapid; by the 20th the cough had almost disappeared, as had the expectoration. The lung was slowly expanding. The opening into the chest was completely closed. The patient's general condition was so good that she was allowed to return to her home, where she has continued to gain flesh and strength.

#### TECHNIQUE OF CÆSAREAN SECTION.

B. C. HIRST (*American Journal of Obstetrics*, January, 1897) calls attention to the fact that operations of tracheotomy and herniotomy may be forced on the general practitioner in an emergency at any moment. But the exigency requiring a Cæsarean section will be rare, occurring only once perhaps in the course of a general practitioner's career. From a personal experience, unusually large in America, of fourteen Cæsarean sections, in which he has tested every method proposed by modern operators, he has settled down in the past three years to a technique which has proved so satisfactory in the operation itself and in its results that the writer intends clinging to it indefinitely.

If there is time to make the best arrangements the Cæsarean section should be performed at a convenient hour of an appointed day, like any other abdominal section. A period about two weeks or ten days before term should be selected. It is unnecessary to excite labor pains beforehand or to secure any degree of dilatation of the os. The preparation of the patient herself is like that for any abdominal section.

The patient on admission is given a full hot bath. Have her kept in bed from the time she enters the hospital until the operation is performed. Administer pill: strych-

nine  $\frac{1}{4}$  grain, digitalis  $\frac{3}{8}$  grain, quinine 2 grains; three times daily before operation. Secure movements of bowels by two drachms Rochelle salts every evening. Have the heart and lungs examined, and also the urine.

The diet before operation consists of gruel for breakfast, soup for dinner, milk-toast for supper, one glass of milk at 10 A.M., 4 P.M., 9 P.M.

As to medicine, at 5 P.M. the day before operation, ten grains sulphonal in half a glass of boiling water, cooled down to temperature that permits patient to drink it, if patient is nervous and has been sleepless; 9 P.M., half-ounce of Epsom salt in a tumblerful of water.

Evening before operation, first cleansing of the abdomen, as follows:

1. Sterilize the following articles for twenty minutes at 240°: soft bristle-brush; absorbent cotton; one-half dozen towels; gauze, unmedicated; binder; long gown.

2. The resident physician, or, under his supervision, the nurse who cleanses the abdomen, must prepare his or her hands and arms as though about to operate, namely: remove rings; scrub with brush, hot water, and tincture of green soap for ten minutes; clean nails with nail-file; scrub hands and arms with benzine and then with alcohol; immerse hands and arms in bichloride solution (1:1000) for two minutes. Then put on the gown.

3. The abdomen, from ensiform to symphysis and from flank to flank, must be thoroughly scrubbed with soft bristle-brush, tincture of green soap, and hot water (for at least ten minutes), paying special attention to navel and to pubic regions. Wipe off the razor with cotton and alcohol; shave pubis, then scrub thoroughly with alcohol. Cover the abdomen with the sterile gauze, and put on the binder.

On the morning of operation give a cup of beef-tea at 7 A.M. The hands of the nurse and doctor should be cleansed as described above; articles resterilized as described above; same cleansing of abdomen repeated as above, but in addition, before alcohol scrubbing, scrub abdomen with benzine; wring out a sterile towel in 1:1000 bichloride solution and cover the abdomen with the towel; put over it a thick layer of sterile cotton; apply binder. Catheterize the woman just before anesthetization with sterile glass catheter in aseptic manner. Give vaginal douche, one quart of 1:4000 solution, followed by a little sterile water. If bowels have not

opened freely give enema—a pint of soap-suds and one drachm of turpentine.

With a large scalpel held firmly in the full hand a free incision is made from two inches above the umbilicus to just above the symphysis. This incision may be carried entirely through the abdominal wall in its upper part—the intestines are out of the way. The abdominal opening is enlarged with scissors downward as low as possible. An assistant makes the wound gape while the operator delivers the womb from the abdominal cavity. The assistant then approximates the edges of the abdominal wound as closely as possible around and above the cervix, at the same time squeezing the latter with his outspread hands. With a few rapid but light strokes of the knife the operator makes an incision an inch in length through the uterine muscle, but not through the membranes, so as not to cut the child. Then with one rapid movement of the left hand and arm the uterine wall is torn down to the internal os, the membranes are ruptured, and the placenta, if in the way, is detached and pushed aside; the child is seized by the most accessible part—shoulder or leg—is delivered, and, with placenta still attached to it, is dropped into a sterile sheet spread out over the outstretched arms of an assistant who stands directly at the operator's left hand, and whose duty it is to revive the child, if asphyxiated, and to tie and cut the cord. Up to this point the operation rarely requires seventy-five seconds. Then follows an easy hysterectomy: ligation of the ovarian arteries and of the arteries of the round ligaments, application of clamps, cutting of the broad ligaments, preparation of peritoneal flaps, amputation of the womb, ligation of the uterine arteries, and oversewing of the stump, which is dropped.

The abdominal wall may be closed by close-set interrupted stitches—the easiest plan for a beginner—or by any other method that a more experienced operator may prefer.

#### ANTITOXIN, INTUBATION, AND TRACHEOTOMY.

DOUGLAS in the *Archives of Pediatrics* for February, 1897, reports an interesting case occurring in his practice in which he employed successfully antitoxin, intubation, and tracheotomy.

In young children suffering from diphtheritic laryngitis, with partial stenosis, where the necessity for quick relief demands the prompt use of antitoxin, we are confronted

occasionally with a sudden increase of the dyspnea due either to a rapid loosening of the membrane, causing occlusion of the narrow opening in the larynx, or perhaps due to that first change or swelling of the membrane caused by the antitoxin. In these cases the immediate necessity for relief either by intubation or tracheotomy becomes imperative.

In many cases during intubation, or rather the first efforts at inserting a tube in the larynx, we loosen the false membrane and thus cause a partial occlusion, or even a complete closure of the larynx. Where a patient is much enfeebled and has been suffering from dyspnea for many hours with well marked cyanosis, the introduction of a tube may endanger life, through thus suddenly loosening the membrane when he has not sufficient strength to expel it, or where the increased effort necessary to do this is more than the strength of the patient can accomplish. He rapidly becomes more cyanosed, breathes less frequently, and death seems certain within a few minutes. Here the physician dare not again insert a tube, and must resort to tracheotomy.

Such a train of symptoms occurred in a child of six years under the writer's care. It had suffered previously at four and five years of age with bronchopneumonia, the latter attack being in the spring and complicated with whooping-cough. This attack lasted two months, after which she made a good recovery, and at the invasion of diphtheria she was in apparent good health. The membrane covered the tonsils, both nares, the pharynx, and finally developed in the larynx. By this time antitoxin had been obtained and injections commenced. The first dose was given in the evening; dyspnea increased greatly during the night, and in the morning she had great recession in the chest-walls with marked cyanosis. Intubation was performed at once. After inserting the tube dyspnea was much increased, as also the cyanosis. This was ascribed to loosened membrane and obstruction of the tube. The tube was removed in a few minutes, but breathing became slower, reflex irritability ceased, and the patient was being rapidly asphyxiated. So far had the nerve centers become insensible that she lay perfectly quiet, recognizing no one; gasping slowly, and rapidly dying. A rapid tracheotomy was resorted to, when the patient immediately revived, and a good recovery resulted. Four injections of antitoxin were given, amounting in all to 3000 units.

A second case is related, a child of eleven years, suffering from laryngeal dyspnea of diphtheritic origin. Little membrane could be seen, but the distressing dyspnea, cyanosis and recession of the chest-walls demanded instrumental relief. Intubation failed. It is probable some of the membrane was dislodged and the glottis plugged with it, for the child did not breathe again; she became blue at once and after a few struggles lay as dead. Slapping the back and compressing the ribs failed to secure even one inspiration. The heart continued beating feebly. A rapid tracheotomy and artificial respiration were resorted to, the heart ceasing before their completion; the patient after two minutes began again to breathe under these measures and recovered. It was very interesting to note the immediate response of the heart to the first natural inspiration. While artificial respiration secured a rush of air through the tube and a partial filling of the lungs, no appreciable result was shown on the heart, and no pulse appeared till after the first natural inspiration. Antitoxin was used.

#### A NEW SIGN OF FECAL TUMOR.

GERSONY (*Wien. Klin. Woch.*, Oct. 1, 1896) describes a sign which, if detected, will often save a patient from needless laparotomy. He is not as yet certain how commonly it is to be met with in cases of fecal impaction. If the tumor be firmly pressed on with the finger the intestinal mucous membrane adheres to the sticky masses of which it is composed; when the pressure is removed the mucous membrane slowly disengages itself, and the sign consists in the recognition of this gradual separation. The only conditions necessary for its production are a certain degree of dryness of the intestinal mucous membrane and a certain impressibility of the fecal mass; the surface of the latter can be softened if necessary by an oil enema. The important factor is undoubtedly the pressure of the intestinal gases. The characteristic sensation can be obtained by pressing the oiled or soaped volar surface of one forefinger into the palm of the other hand and very slowly withdrawing it. Gersuny relates a case of an enormous fecal tumor in a woman of thirty-two; this sign was present, but as he did not at that time recognize its significance he opened the abdomen. He also records two cases occurring in Osler's practice, in which the detection of this sign not only saved the patients from operation, but also

indicated the correct line of treatment. All these three cases seem to belong to the same clinical group; the affection began in infancy with irregularity of the bowels and constipation, which remitted for a time under the influence of purgatives and irrigation, only to recur with increased intensity, till at last chronic intestinal obstruction resulted. With this was associated hypertrophy of the large intestine, which became longer, wider, and more thick-walled; the contraction of the walls offered at times an increased obstacle to the passage of feces. Patients suffering from this complex symptom are ill-developed, pale, and thin; purges, irrigation, and massage fail to affect the fecal tumors. The only means of removing these is the combination of oil enemata and massage, which reduce the intestinal contents to a pasty mass, which can then be expressed. The detection of Gersuny's sign, therefore, indicates this treatment.—*British Medical Journal*, Jan. 2, 1897.

#### RESECTION FOR DISEASE OF THE ANTERIOR LOBE OF THE BRAIN.

DURANTE (*Supplem. al Policlinico*, October 31, 1896) at the recent congress held in Rome reported the case of a man who had suffered for some time from pains in the head, which were at first lessened by antisymphilitic treatment. Later, prominence of the left frontoparietal region, exophthalmos, and amblyopia came on. The man's memory had diminished, and he became melancholy and unsociable; he also had hallucinations. A semicircular osteocutaneous flap was made, and the part trephined. Three hard syphilitic gummata were removed from the frontal lobe. Next day the man's vision returned, and eight days later the intellectual and moral faculties returned to their normal condition. The headache disappeared. Six months later he had an attack of Jacksonian epilepsy, probably due to post-operative meningo-encephalitis.

Another case was that of a woman previously shown at a congress held in Perugia, suffering from loss of memory of words and things, religious perversions, altered moral sense, etc. Upon operating a fibrous adherent body was found and removed. The patient changed as if by magic, and speedily recovered her intellectual and moral faculties, and left the hospital cured. Two months later slight epileptoid attacks occurred, probably due to slow inflammatory processes.

The author dwells on the advantages of an osteocutaneous flap in these cases. Maffucci

mentioned five cases confirming the view that the frontal lobe is the seat of ideation.—*British Medical Journal*, Jan. 2, 1897.

*A METHOD OF PREVENTING VAGINAL PROLAPSE FOLLOWING ABDOMINAL HYSTERECTOMY.*

J. M. BALDY presents an interesting paper with the above title in the *American Journal of Obstetrics* for January, 1897. He states that vaginal prolapse following hysterectomy has during the past few years been noted and reported in several instances, and it seems not improbable that such untoward sequences will be more and more frequently noted in the future, as the ultimate results of this operation as performed during the past few years are gradually gleaned. The fact that this complication is beginning to be observed is by no means surprising when the anatomical relations of the pelvis are noted and compared as they exist before and after the operation.

Dr. Baldy states that his procedure is in all essentials an abdominal hysterectomy by amputation at or below the internal os. The points to be observed are: to include both the ovarian arteries and the round ligament in the first ligature on each side of the uterus; to place this ligature as near the pelvic wall as possible, so as to leave but a small amount of broad ligament behind with the stump; to place but one other ligature on each side of the uterus, this ligature to include the uterine artery with as little other tissue as possible, which leaves both broad ligaments open; to amputate the uterus as low on the cervix as possible. The sutures employed are of heavy silk, which in the course of their application include both the ovarian and uterine stumps, deeply placed well back of the ligatures. These points are important, as considerable traction occurs when the sutures are tied, and unless these precautions were taken the suture might tear out or the ligatures on the stumps become displaced. The sutures include the sides of the cervical stump.

The effect of tying these sutures is to lift up the stump of the cervix together with the vagina and to bring it in close approximation with the ovarian stumps, doubling the opened broad ligaments together. Of course the portion of the broad ligament at the point of the ovarian stump will be drawn down somewhat, but the main effect is to lift to a high point the cervical stump and at the same

time to drag up the vagina. Adhesions take place throughout the full extent of the doubled broad ligament, and most surprisingly firm support is given from above to the vagina. The peritoneum is drawn together by a continuous catgut suture over that portion of the cervical stump which remains uncovered after the two sutures are tied.

The results accomplished by this operation are: The weight of the heavy uterus is removed; the overstretched vagina is lifted high up and held firmly in place; the supports utilized are the natural supports of the uterus and upper portion of the vagina—the broad ligaments; the cervix remains a pelvic organ; the immediate and remote result as regards fixation of the upper part of the vagina is perfect.

Where there is a cancerous or tubercular uterus to be considered the operation can readily be modified by completely removing the cervix and (after closing the vagina by a continued whipped suture of catgut in the mucous membrane) passing the suture through the vaginal vault instead of through the cervix.

Our aim in placing the sutures should be to open up as little of the broad ligament as possible; to have the vagina as high as possible after the uterus is removed; to place all possible obstacles in the way of vaginal sagging. This can be best accomplished by placing but four ligatures instead of six and making each ligature include as much tissue as is consistent with safety. The first ligature should pass through the broad ligament below the round ligament; it should include both the ovarian artery and the round ligament with its vessels. The ligature about the uterine artery should then include also as much broad-ligament tissue as possible; this can best and most safely be accomplished by tying the artery as it passes up along the side of the cervix, and not in the base of the broad ligament as is usually recommended. If the ligature be so placed there is absolutely no danger whatever of tying the ureter, provided of course there is no anomaly in this organ.

*THE TREATMENT OF WOUNDS BY GLUTOL (SCHLEICH).*

THOMALLA (*Therapeutische Monatshefte*, January, 1897) states that for many months he has used formalin-gelatin (glutol) as a surgical dressing applied to neatly apposed incisions which have been kept clean. The results are about the same as those noted

under other dressings—i.e., prompt primary healing. When used as a dressing to ragged and irregular wounds which cannot be neatly apposed, suppuration does not occur. Necrotic fragments quickly separate and cicatrization takes place more rapidly than under other dressings. When wounds are suppurating and are not thoroughly drained the use of glutol is not satisfactory, since a scab quickly forms beneath which pus collects. It is well under such circumstances to remove a part or the whole of the crust and again apply glutol to the wound surfaces. In this way suppuration is quickly limited and the healing is prompt. It is not necessary to remove the entire crust, but only a sufficient portion to allow the free escape of the retained secretion.

Glutol is especially serviceable in the treatment of burns. Originally Thomalla removed the scabs, but as suppuration never took place he allowed them to remain, and has never had infection, excepting in one case, the wound cicatrizing rapidly. This one case was a burn of the foot which was prevented from healing by the rubbing of the shoe. His reason for letting a scab form and remain for several days in the treatment of burns is based on the fact that when suppuration does not take place a breaking up of the glutol and a setting free of the formalin is not required, while the scab acts as an excellent protective to the surface below. Glutol is also advised in all those small wounds which cannot be conveniently bandaged—for instance, such as are inflicted on the fingers and hands of workmen who continue their occupation. Glutol is sprinkled on the wound and over this is painted collodion. On the collodion is sprinkled another layer of glutol, thus forming a water-tight scab. In no instance was there suppuration or growth of proud flesh. The author holds that glutol is the best antiseptic which the surgeon can use in the form of powder, and that it has an extremely wide range of application.

#### NEW DRESSING FOR CIRCUMCISION.

After the operation clean the penis with some aseptic solution, then paint the penis from the meatus to the root with the following:

- Resin, 1 drachm;
- Copal varnish, 1 drachm;
- Beeswax, 1 ounce;
- Tallow, 2 ounces;
- Iodoform, 1 drachm.

—*Indian Med.-Chir. Review*, vol. ii, No. 5.

#### EXTRA-GENITAL CHANCROID.

KREFTING (*Norsk Magazin for Laegeviden-kaden*, 1896) records seven cases of extra-genital chancroid. These cases were due to autoinoculation from a genital ulcer, and were situated over the perineum, the back of the hand, right thumb, right side of the breast, the left middle finger, and the left forearm. Diagnosis was confirmed by microscopic examination. The seventh patient exhibited only a soft chancre on the right index and had no history of venereal ulcer. Diagnosis was confirmed by autoinoculation and finding the microbe.

Fournier states that soft chancre of the head is moderate in extent, superficial, solitary, and quickly heals. Diagnosis can be made only by autoinoculation. The treatment is thus appropriate to genital chancroid. —*Monatshefte für Praktische Dermatologie*, bd. xxiv, No. 1.

#### ROENTGEN RAYS USED FOR DETECTING BULLETS IN THE HEAD.

SCHIER (*Wien. Med. Presse*, 1896, No. 33) reports the case of a patient who five years ago was shot in the right brow. The symptoms suggested that the ball was lodged in the ethmoid bone. There was complete palsy of the right trigeminus, with the exception of the motor filaments, loss of taste in the anterior two-thirds of the side of the tongue, palsy of the right olfactory nerve and the right optic. It is supposed that besides the direct wound there was a fracture of the base, thus accounting for the palsy. The Roentgen-ray picture, taken from different directions, showed that the bullet was located near the petrous portion of the right temporal bone, near the Gasserian ganglion.

#### THE USE OF AMYLIFORM IN SURGERY.

CLASSEN (*Therapeutische Monatshefte*, January, 1897) holds that amyli-form is a true chemical combination of starch and formaldehyde, proving this on apparently incontrovertible grounds. He claims for this preparation that it is absolutely free from irritating properties, and non-toxic, that it favorably affects the secretion and prevents tissue necrosis, that it does not form a dry crust which retains secretion, and that it will absolutely prevent the foul odor from gangrenous wounds.

Langaard holds that amyli-form is greatly to be preferred to this drug.

### BACTERIAL THERAPY OF MALIGNANT GROWTHS.

PETERSON (*Therapeutische Monatshefte*, January, 1897), after a review of the literature bearing upon the bacterial therapy of malignant growths, states that cases treated in Czerny's clinic warrant the following conclusions:

The treatment is absolutely worthless as applied to carcinomas.

Very exceptionally sarcomas apparently disappear.

The treatment itself is dangerous.

### TREATMENT OF TRAUMATIC TETANUS WITH CHLORAL HYDRATE AND BROMIDE OF POTASSIUM.

BHICCAJI (*Indian Medico-Chirurgical Review*, vol. ii, No. 5) reports the case of a female Hindoo applying for treatment for the lobule of her left ear, which was torn through. The injury occurred on February 20. On February 24 about midnight the reporter was called to see her at her house, where he found tetanus had appeared. The woman was removed to a hospital and the wound of lobule of ear antiseptically dressed. He prescribed fifteen grains of hydrate of chloral, with equal weight of bromide of potassium, every four hours. On the third day the patient was much better. Treatment was continued for eight days and the patient discharged cured on the fifteenth day.

### THE TREATMENT OF COMPOUND FRACTURES OF THE CRANIUM.

In the *Lehigh Valley Medical Magazine* for December, 1896, appears a valuable *résumé* of the treatment of complicated fractures of the cranium, contributed by W. L. ESTES.

The treatment of severe injuries should be upon the same principles as complicated fractures elsewhere. The cranial cavity is no longer the *noli me tangere* of surgery. With asepsis and thorough drainage, results which formerly were considered quite impossible are now being obtained by every modern surgeon. Unless the surgeon is prepared to do any necessary operation, including cleansing, disinfection, removal of offending pieces of bone, suturing the dura, etc.—after evacuating lacerated and detached cerebral tissue—he should confine himself to attempts to control hemorrhage and prevent further soiling of the wound. When he renders first aid, the wound should never be explored fur-

ther than to separate the hair, and by means of the hair the lips of the wound, very gently and carefully, in order to discover the extent of the injury. Soiled fingers poked into a cranial wound have many a time signed the death-warrant of the injured person, and the knowledge gained by touch has rarely been of any service in the immediate handling of the case. If there is free hemorrhage it ought to be checked. There are two possible sources of this hemorrhage: the vessels of the scalp and the intra-cranial vessels. Exploration of the wound at this time should be only to find out whether the bleeding is from the scalp or from within the cranium. Usually scalp hemorrhage may be controlled by placing a thin compress under the surface of the wounded scalp and another above the surface, and by a bandage gently squeeze the edges of the scalp between the two. The hands should be carefully washed before doing this manipulation, and only the least possible manipulation be employed—in other words, the condition of the wound should be disturbed as little as possible. The compresses should also be perfectly clean—if practicable, sterile. Unless means be at hand for thoroughly cleansing the wound and its surroundings, it is best not to attempt it at all. If the hemorrhage is from the inside of the cranium, or from the diploe, packing must be used, if the bleeding is at all severe. Pack the crevices between the fragments of the bone with some clean, thin fabric (gauze is best if it can be obtained), and then fill the whole wound tightly with the same material and bandage firmly in place. Then the patient should be transported to a place where he will receive permanent care and attention as soon as possible; and his head should be kept a little elevated during the journey.

These injuries always require an operation. Frequently the operation will be only raising a little depressed bone and suturing the scalp after most careful cleansing; occasionally, however, it will be necessary to remove a quantity of comminuted bone, clear out a quantity of lacerated cerebral tissue, stop profuse hemorrhage, attempt to restore or replace lacerated dura, provide for deep drainage, do some heteroplastic operation to prevent a subsequent hernia of the brain, and transplant the scalp to cover the opening in the bones.

When the surgeon is ready for the permanent dressing and operation, the first act, after getting the patient in a suitable light

upon a proper table, should be to clip with a scissors or hair-clipper the hair about the wound, and then from the wound outwards over the whole scalp, or over so much of the scalp as to insure absolute safety from any infection from the hair. During this clipping the wound should be covered by a piece of sterile gauze. Now the immediate surroundings of the wound for some distance about it should be shaved after careful lathering with green soap. Care should be taken to shave in a direction away from the wound, and while wielding the razor the flaps of the scalp should be steadied by gentle pressure. The patient may now be chloroformed. (He thinks if there is no organic heart lesion chloroform is better than ether in these cases.) Even if he be seemingly unconscious he is apt to have so much reflex left that manipulations will produce struggling. When under the anesthetic, have an assistant carefully douche the wound with a warm, sterile normal salt solution, and thus wash away detritus, clots, hair, and dirt from the wound itself and its immediate surroundings. During this time the operator and his chief assistant should thoroughly scrub and sterilize their hands. The first assistant, after irrigating the wound and surroundings, should place over it sterile gauze and carefully hold it in place while he washes with green soap and water the whole scalp, then use ether and alcohol to remove sebaceous matter, scales, etc., and then a warm five-per-cent. solution of carbolic acid, and lastly the sterile salt solution. Place the head on a firm, sterile, rubber-covered pillow, and now again irrigate the wound carefully with the sterile, warm salt solution. The surgeon may now begin his exploration and operation. The instruments, of course, should have been thoroughly sterilized, and they should be kept in a warm solution of carbonate of sodium during the operation. The author's experience suggests the "bull" that in "trephining" for depressed compound comminuted fractures never use a trephine; the instruments usually necessary are a knife, a pair of blunt-pointed scissors, a chisel, a good, sharp, strong Hopkins rongeur, two or three bone forceps with different curves, an elevatorium, two thumb forceps (one rat-toothed), a half-dozen hemostatic forceps, small and medium sized curved needles and a good needle holder, small and medium silk, silkgut and catgut for sutures and ligatures. The small needles should be previously threaded and ready for instant use.

The operation is begun by incising the scalp over an area sufficient to expose freely the depressed bone, following the line of laceration as far as practicable; rapidly raise and separate the scalp and pericranium from the bones, catch every bleeding vessel in the scalp, turn back the flaps, chisel or gouge the edge of the peripheral fixed bone to get under the edge of the depression with an elevatorium or bone forceps; the depressed bone should be slowly and carefully lifted up. If the fragments have been much soiled, as they frequently are, they should be removed entirely; if not at all soiled the question of their removal will depend upon the condition of the fracture; if very much comminuted and displaced, and the dura and cerebral tissues much damaged, they should as a rule be entirely removed and kept in a warm sterile saline solution with the idea that in certain cases they may possibly be replaced. With the removal of the depressed bone hemorrhage will occur if any principal vessel is involved; this sometimes is a most formidable complication when a sinus is injured or the middle meningeal artery is torn low down. As soon as the bone is out and hemorrhage is free, press into the wound a pledget of sterile gauze and hold it firmly in place for a few seconds, then raise it gradually from one side and carefully watch for the exact spot from which the blood flows, or from which occurs the most profuse flow. If it comes from the dura, a stitch passed by the small curved needle already threaded will probably control it unless the dura be very badly lacerated. The author has had two cases in which the hemorrhage was so exceedingly profuse when the depressed bone was raised that he was obliged to desist, rapidly pack with iodoform gauze, and give up any further operating attempt. One case was an enormous fissure and depressed fracture in which the whole parietal bone was drawn downwards upon the cerebrum and the temporal bone fissured transversely across; the bleeding from the meningeal vessels was so profuse and from so many places that raising the bone would have meant almost immediate death. The bone was left depressed and acted sufficiently, with external plugging and compression, to control the hemorrhage. The cerebrum was so extensively torn that the man died soon after. The other case was quite an extensive compound comminuted fracture, just a little posterior and to the right of the vertex; the depressed part had torn the longitudinal

sinus. The first gentle movement of the depressed fragments was followed by a torrent of blood. He was obliged to drop the fragment back immediately and make pressure; then with a gouge and chisel to cut out some of the peripheral fixed bone; he succeeded in detaching a small fragment of loose bone near the sinus, and by gently insinuating a piece of iodoform gauze in the direction from which the blood seemed to come, he finally stopped the hemorrhage. The next day he was able to raise the depression, but the hemorrhage was again profuse; he controlled it, however, by packing gauze introduced into the rent in the sinus. The man made an uninterrupted recovery notwithstanding the very extensive depression and loss of bone. These cases show that even the most alarming hemorrhage may sometimes be controlled, and packing is the most efficient method of doing this. Such cases as these also show the necessity of having ready means of meeting these emergencies and the futility of attempting these cases by the roadside or when not prepared for them.

The fragments of depressed bone having been removed and the hemorrhage stopped, the next thing is to clean out clots and all detritus. He finds a gentle stream of warm sterile saline solution the best method of doing this, especially when the dura is badly lacerated and there has been an escape of lacerated cerebral matter. Swabbing out a cavity in the brain is a disagreeable and rough method and is apt to increase the injury and so do great harm. After this, if practicable, the dura should be sutured with fine sterile silk. If the dura cannot be brought together, and especially if the cortex has been lacerated, there is great danger of cerebral hernia resulting. In these cases he has replaced the dura with a layer of gold foil, introduced under the edges of the dura on every side and of course large enough to cover the area of bare brain left by the lacerated dura. The dura holds the edge of the foil, then by passing sutures from one edge of the dura across the foil to the other edge and tying them, it is held firmly in place. He lays special stress upon the importance of inserting the foil under the dura mater; if the arachnoid is intact it lies between the dura and arachnoid. Other operators have used the foil between the dura and cranium for the purpose of preventing adhesions to the bone. Experience has shown that in traumatic epilepsies there are nearly always

adhesions between the dura and the arachnoid and pia, and that fibrous bands seem attached actually to the cortex itself. The expedient he recommends will obviate these deep adhesions to a great extent, as well as fill in the gap in the dura. When the force applied is very great and over a very circumscribed area—as by a blow from the cork of a horse's shoe, or a bolt on a car striking the cranium—there may be a sort of punched-out wound of all the tissues and a depression deep into the cortex, as he has seen in one case. After all bone, detritus, etc., is removed, there will be a cavity left in the brain, and the cerebral tissue, semi-solid as it is, will continually gravitate into the cavity and thence outwards, in spite of all ordinary efforts to prevent it. He succeeded in controlling this, and had a rapid recovery in the case he mentioned, by making a cup of the gold foil and sinking it into this cavity in the cerebrum, about two centimeters deep; by attaching its rim to the indentations and irregularities of the inner table he anchored it, and then gave it fixity by plugging the cavity of the cup with iodoform gauze. He recommends this in similar cases and says he shall use it whenever he has a chance. The gold foil remained permanently in the cerebrum and caused not the slightest disturbance, and prevented entirely any further escape of cerebral matter. The gauze packing may be removed in three or four days.

Having dealt with the dura and lacerated brain according to the indication, the next point is to assure good drainage. Usually capillary drains of iodoform gauze or thoroughly sterilized catgut will suffice; these, while they act as capillary drains, are best placed at the most dependent part of the wound when the patient shall be in the ordinary recumbent position in bed. Gravity will assist in draining, and sometimes this is necessary in such cases. The next question is, shall the pieces of bone be replaced or not? When the fragments of bone are all badly comminuted, especially when they have been much soiled, and when their replacement may possibly interfere with drainage, do not replace them. Estes' experience is against replacing the fragments at all when they have been entirely separated; they are almost sure to become depressed, no matter how carefully and nicely they be replaced. In one case traumatic epilepsy followed after such replacement, and though it was subsequent to a second severe injury to the head, the symptoms now all point to the firm but



depressed area where the fragments were replaced, and he thinks these are causing the trouble. The man absolutely refuses to have an exploration made. Dr. Beach's and Dr. Weir's recommendation of gold foil under the cranium is better, or some of the many heteroplastic methods—such as plates of celluloid, ivory, or silver fitted into the space left vacant in the cranium—may be used.

The scalp should, as a rule, be nicely exposed and sutured, always leaving a sufficient space for the drains. Sometimes extra drains through the scalp may be used with good effect. Sterile, dry dressings should be applied and held firmly in place by careful bandaging.

The after-treatment of cases of cranial injury, followed by operation, is usually very simple if the operation has been efficient. Cases of depressed fracture or fissures of the vault are frequently accompanied by pressure signs, rather diffuse, but in many cases pointing to injury of the opposite side. In these cases subdural hemorrhage or multiple small hemorrhages, small lacerations, and severe contusion of the cerebrum in the cortex and about the corpus striatum and optic thalamus of the opposite side may be suspected. Trephining over the motor area of this side, incising the dura, and occasionally capillary drainage of the lateral ventricle, may be of service, if the original operation failed to give relief. This secondary opening should be done with a trephine or electric saw and not with a chisel, as jarring of the head should be sedulously avoided. For twenty-four hours after the operation he gives pretty full doses of ergot and the bromides; also full doses of morphine hypodermically if restlessness or sleeplessness should require it. A prime indication is to keep the patient quiet and absolutely free from pain, if possible. He never uses ice-caps or any application of cold to the head after head operations. Gauze drains may be withdrawn as a rule in forty-eight hours; gauze packing for hemorrhage, unless a sinus or one of the larger meningeal arteries has been torn, may be removed at this time also. If one of the larger vessels has been involved, about sixty hours is a safer period for packing to continue. The scalp drainage—that is, the drain through the scalp wound to the dura—if there has been considerable laceration, should be continued for a week. Recumbency, with slight elevation of the head, should continue until all cerebral symptoms are passed. Light nitroge-

nous diet should be allowed and as much water as the patient will drink. If stimulation is necessary he invariably uses strychnine, and has found that its stimulating action on the spinal cord never does harm if properly watched and the dose graded. Alcohol is contraindicated in his experience. After three days he usually gives bichloride of mercury in full doses, and if the "cerebral irritation" or cerebritis persists, ascending doses of potassium iodide, with some one of the bromides. The strictest asepsis and the best drainage must be maintained throughout.

#### ON OPERATIVE INTERFERENCE IN TYPHOIDAL PERFORATION.

ARMSTRONG publishes a valuable contribution on typhoidal perforation in the *British Medical Journal* of December 5, 1896. He calls attention to the fact that symptoms of perforation are generally described as being very distinct and characteristic. These symptoms are sudden, severe abdominal pains associated with collapse; a marked fall in the temperature, often to a point below normal; the pulse becomes rapid and shabby; the abdomen at some part is tender to the touch, and the abdominal muscles tense and rigid, and later distended and tympanitic; the patient is sometimes livid, the face covered with a cold perspiration; the extremities cold.

Too much reliance should not be placed upon the disappearance of liver dulness, although if you are familiar with the area of liver dulness in the patient under observation, the lessening of the dull area in a suspected perforation is certainly a valuable sign. Murchison mentions as other causes of intestinal perforation in typhoid, softened infarctions of the spleen, softened mesenteric glands, and rupture of ovarian abscess.

The symptoms resemble very closely those of acute appendicitis, but in the writer's experience with a number of cases in this hospital, the occurrence of perforation in typhoid is not as a rule announced by such marked and distinctive symptoms as some medical authors describe. The patient complains of pain, but it is not always sufficiently severe to require opium for its relief. There is abdominal tenderness, but it is not as great as in appendicitis, and greater pressure is required to make the patient complain. The temperature is generally lowered two or three degrees, but soon rises again; the face is anxious; and the pulse somewhat

but not markedly accelerated; it is often altered more in quality than in rate. In fact it requires careful and critical observation to determine whether in a given case a perforation has occurred or not. In some cases the symptoms of perforation may be said to be almost entirely absent. This is why house physicians so often overlook its occurrence, and leave it to be discovered by the attending physician at his next visit.

Having recognized a typhoid perforation, how should it be treated? When sure of your diagnosis, give a dose of opium; by so doing you relieve pain and arrest peristalsis, thus favoring the formation of limiting adhesions, and so far as possible preventing the spreading of the escaped matters over the abdominal cavity. Supply artificial heat by means of hot-water bottles and hot flannels, and if there are indications for it, administer a stimulant. Hot fomentations over the abdomen are generally grateful. If the patient's condition permits, ice may be applied over the tender area.

Leyden in 1884 suggested that typhoid perforations should be treated by laparotomy. In the same year Mikulicz reported a successful case of laparotomy with intestinal suture in a patient with ichorous purulent peritonitis, attributed to a perforating typhoid ulcer of the small intestine. The diagnosis of typhoid was not clear; the patient had a small right inguinal hernia. He thought himself well when he jumped out of bed, and was suddenly seized with acute abdominal pain. Laparotomy was performed on the third day for supposed intestinal obstruction. A hole was found in the ileum six millimeters long and four millimeters wide; there were no signs of injury to the bowel, and the mesenteric glands were enlarged. The opening was clean cut, and the edges of the mucous membrane were not everted.

Lücke in 1887 performed the first laparotomy undertaken with the defined object of finding and closing a typhoid perforation. The perforation occurred on the eighteenth day of the fever, and Lücke operated twelve hours later. The patient died.

Since then many operations in different countries have undertaken to close typhoid perforations, but the successes can be counted on the fingers of one hand. The first successful case that the writer finds record of was operated upon by Wagner in 1888. The patient was a woman. The perforation occurred during convalescence. The diagnosis of typhoid perforation was made, the abdo-

men opened, irrigated, and the wound in the bowel sutured. The patient recovered.

In 1890 Taylor operated, but the operation was performed ten days after the onset of symptoms. There is no proof that the case was typhoid.

In 1891 Van Hook operated upon three cases of typhoid perforation, and one patient, a woman thirty-one years of age, recovered.

In 1894 Netschagan, of St. Petersburg, did a laparotomy for typhoid perforation, and resected a portion of the perforated bowel. The patient recovered.

In 1894 Abbe performed laparotomy on a woman, aged thirty-one, who was convalescing from typhoid. The opening was sutured, the abdomen thoroughly irrigated and tamponaded with iodoform gauze; the abdominal incision was not closed. The patient recovered.

Laparotomy for the treatment of typhoid perforation has been performed six times in the Montreal General Hospital, three times by the writer and three times by his colleagues. So far he has not been able to record a success. The perforation occurred in the patient who is the subject of the author's present paper on the thirteenth day of a more than usually severe form of typhoid fever. The pain and collapse at the time of perforation were not marked; there was some vomiting. He operated eighteen hours after the occurrence of sudden abdominal pain, tenderness, and vomiting. The perforation was readily found, situated about six inches above the ileo-cecal valve; a quantity of fetid brownish fluid, pus, and gas filled the pelvis and lower abdominal zone. The perforated ileum had formed no adhesion to neighboring coils or to the parietes, but the opening was partially closed by a corner of omentum which was attached around the perforation; it separated very easily. Possibly if this man recovers it will be due to the fact of this omental adhesion limiting the escape of bowel contents. Twenty days had elapsed since the operation. The patient's condition was good in every way; he passed formed stools, slept well, and took plenty of nourishment; his abdomen was soft and flaccid, and absolutely free from pain or tenderness; temperature falling, and had a good pulse of 88.

The statistics stand at present—not counting the writer's case, whose recovery is not yet complete, but including doubtful cases—thirty operations and six recoveries; but if only those cases are included in which there

was no doubt as to the diagnosis, counting only early laparotomies, we have twenty-three operations with four recoveries. It is probable that many unsuccessful operations have been performed that have not been reported, but he thinks most of the recoveries have been recorded. Five cases have recovered after incision and evacuation of local collections of pus, and one case after aspiration of a collection of pus and gas in the cecal region.

Now in view of these results, what is our duty when brought to a case of typhoid perforation? The patient is in very poor condition for operation, suffering from the typhoid poison, with very poor reparative and recuperative power. Perforation peritonitis adds more poison. Should we add the traumatism of an operation with a little loss of blood, and anesthesia? Does any other treatment offer as good or better chances? Is there any alternative but to operate, or to hand the patient over to some one familiar with such work? The question must be answered according to the circumstances and condition of each case. If there is a clinical evidence that the perforation is in the colon, or that it is likely to remain localized, then we should wait for abscess formation. If, on the other hand, the clinical signs point to a perforation having occurred into the general peritoneal cavity previous to the formation of living adhesions, it would seem as though laparotomy, closure of the hole, thorough irrigation with normal saline solution at a temperature of 110° F., and very free drainage, offered the only hope of recovery. This should not be undertaken until the condition of collapse has passed off, nor in patients who are evidently moribund.

Perforations occurring during convalescence offer greater prospects of recovery. In this, as in the writer's previous cases, he closed the opening in the bowel by two or three rows of Lembert sutures running in the long axis of the bowel. The opening closes readily. Dr. Johnston kindly tested the closure in the two cases that died—one twelve hours, the other twenty-four hours after operation; in each case neither water nor air could be forced through the sutured part without a good deal of pressure.

The diagnosis in the case reported was confirmed by finding that a drop of the patient's blood gave the characteristic reaction when brought into contact with a pure culture of the typhoid bacillus after a modification of serum diagnosis.

#### WHEN MAY GONORRHEICS MARRY?

DR. LOWENHARDT (*Journal des Connaissances Médicales*) gives the following rules to be observed by physicians consulted by blenorrrhagics to gain medical consent to marry: As the virulence of the urethral discharge depends upon the presence of the gonococcus, the candidate should be subjected to numerous bacteriological examinations, carried out separately on the secretion of the anterior and posterior urethra. A slight secretion is not sufficient, but the urethral mucosa must be irritated in such manner as to place it in analogous conditions to those (excess in Baccho et Venere) which light up an indolent process. This result may be obtained by injecting a few drops of a five-per-cent. solution of silver nitrate into the urethra; if the discharge thus set up contains no gonococci, but is entirely made up of epithelial cells, marriage can be permitted. Another rather popular method of provoking a urethral discharge in order to establish the verity of a cure is to give an injection of 1-to-1000 bichloride solution, and to instruct the patient to drink a quart or more of beer. This would seem to be more heroic than circumstances would warrant. The presence of the numerous pus corpuscles necessitates renewed examinations and energetic treatment of this pseudo-gonorrhea. In spite of failure to find gonococci after repeated examinations, it is better to wait until the discharge has ceased entirely, and to withhold consent to marry until there can be no possibility of contagion. The extreme views of Noeggerath and Tait on the incurability of gonorrhea in the male are too often and too clearly refuted by practical experience to merit serious consideration. Latent gonorrhea, in the etymological restriction of the adjective to "lying hidden," has no existence. If the disease exists, it can always be discovered.—*Medical Record*, Dec. 19, 1896.

#### AMBULANT TREATMENT OF FRACTURES OF THE LEG.

MARTIN (*Philadelphia Polyclinic*, Jan. 2, 1897) presents a communication with the above title. The method of treatment consists in so applying the plaster dressing that a patient, instead of being confined to bed for five or six weeks, can get about and attend to any light occupation. The dressing had been applied to twelve patients in the last six

or eight months. The dressing was employed in upwards of thirty cases and the results were good. There were two cases in which the results were not thoroughly satisfactory, but in these the reporter did not apply the dressing personally. One was an instance of Pott's fracture. The deformity was not greater than is often noticed after treatment by the fracture-box, but there should have been none. The other was one of compound fracture, for which the patient was operated on. The wound healed kindly at first, but later it broke down and the fracture was found to be ununited. The bone was then cut down upon, and a portion of the tibial shaft, about two inches, resected. A few days after the operation, as the operation wound was running a sterile course, Dr. Martin directed an ambulant dressing to be applied. The patient was up and walking five days after the operation, and he apparently did well, the bone uniting, although there was some deformity. Martin has never used the dressing for fractures of the bone above the knee, and, with the exception of the last case, all have been simple fractures.

The first patient was a boy who was run over by a bicycle, and both bones of the leg were broken at the middle third. There was no difficulty in replacing the bones in good position, and an ambulant dressing was put on a few days after the injury. After the plaster was applied there was no pain, and the patient has been walking ever since—that is seven weeks ago. There seemed to be less stiffening and after-trouble than is common when the fracture-box is employed. The boy has been very comfortable and has been saved a long confinement in bed. The first dressing applied broke, because of poor plaster, and a second one was put on about ten days later.

In the second patient, a boy, the first dressing was poor and a second had to be applied; the latter was worn for five weeks. The union is perfect and there is no disability.

The third case was one of fracture of both bones of the leg at the middle third, during a fight. The patient began walking the day after the application of the dressing. He came to the dispensary to be dressed, and was saved several weeks in bed.

The fourth case had a Pott's fracture; the patient began walking the next day, but had some pain.

The last case was in an old woman, who fell down stairs some three or four months before, breaking the upper third of the tibia

and fibula. There was very little deformity, and the dressing was applied promptly. She had less use of the dressing than any patient that Dr. Martin has thus treated. She could not walk without a crutch or chair. Three weeks elapsed before she went home. She did not complain of pain, but seemed unable to manage the large, heavy dressing. The day following the application of the dressing—the second after her accident—Dr. Martin took her by the hand and led her up and down the ward, but the walking was not rapid or easy. Perhaps the best thing the dressing did for this patient was to shorten her stay in bed and allow her to go home and walk about one or two weeks sooner than she otherwise would have done. She presented absolutely no deformity; nor did any of the cases.

The cases presented were not selected by any means, and represented very nearly what can be expected from the dressing. The first proposition to treat fractures by the ambulant method was made by Bardeleben in 1894, and, following him, a number of German surgeons tried it. Bardeleben reported upwards of 111 cases. Some of his colleagues reported a number of others, so that the total number was 200. Since that time Dr. Martin has had upwards of thirty cases of his own.

The Germans apply the ambulant dressing not only for fractures of the leg, but also for simple and compound fractures of the thigh. The principle on which this dressing is applied is that of fixation and shifting of support. Given a fracture of one or both bones of the leg, as soon as the weight is thrown on the foot there is, of course, a tendency to overlapping of the bones. If the weight of the body could be carried from above the fracture to the ground by external supports, as by means of a plaster case passing from the knee-joint to below the sole of the foot, the tendency to overlapping would at once be corrected. If the weight of the body could be kept from causing overriding of the fragments, and at the same time the fragments fixed in good position, there seems to be no good reason why patient should not use his leg. This is accomplished by the so-called ambulant splint; the plaster is so applied that the weight of the body is carried from the tibial tuberosities just below the knee to the reinforced portion of the dressing lying below the sole of the foot, pressure upon the malleoli being avoided by abundant cotton padding. This dressing fixes both the joints

contiguous to the fracture. It is perhaps open to a serious objection, as it entirely prevents the use of massage. It is inapplicable to certain cases, *e.g.*, when there is great swelling, when the shape of the leg is such that the weight cannot be carried from the tibial tuberosities to the rigid dressing that envelops the leg (this is particularly the case in very fat women with small bones). In most instances of simple fracture of the leg, when reduction is possible, either with or without ether, and when the swelling is not marked, the dressing is the most satisfactory that can be used.

The dressing should be applied as soon after the fracture as possible; it requires abundant padding with some elastic material; it must be so arranged that the plaster does not press into the malleoli, and the plaster must be neatly fitted below the knee; it should be worn from four to six weeks. On the day following the application of the dressing, the patient is gotten up with the help of an assistant or a friend, who takes him under the arm and assists him in walking up and down the ward. The Germans use an apparatus very much like the walking device provided for children, the patient standing inside a sort of cage which is on wheels. In a day or so walking is possible with two crutches; in another day, with one crutch; and in a week the patient can usually get along with a cane or without any support. It is scarcely rational to apply this dressing to a hod-carrier and expect him to be able to continue his employment at once; but a man can attend to ordinary business pursuits.

Another advantage of the dressing is that less atrophy follows than after the use of the ordinary fracture-box or plaster dressing. The fracture-box is a poor dressing. Even if the patient is lying in bed the plaster is best. The atrophy is a manifestation of a reflex neurosis, as has been proved by experimental research. The great advantage inherent in the plaster dressing is that it enables the patient to be up and about (and every one realizes how irksome it is to stay in bed when it is not absolutely necessary), and may, perhaps, save these patients four or six weeks of lying on their back.

As to the direct method of applying the dressing: In the first place the plaster must be fresh, and that is often a very great trouble in plaster bandage—it is better made in a coarser mesh of gauze than that used for the ordinary surgical bandage; a lot of cotton batting should be provided; and the fracture

must be reduced. A mistake is often made in not etherizing more frequently than is done in the treatment of fractures. The first essential is thorough reduction. When there is swelling and the patient is sensitive there is a great temptation to trust that reduction is accomplished without making this perfectly apparent. In the majority of cases ether should be administered in applying this plaster bandage. Ether should always be given when it is not absolutely certain that the bones are in proper position. The leg is then enveloped in a flannel roller, as is customary in the application of all plaster dressings; the cotton is wrapped about and then the plaster is applied. For the purpose of flanging out the lower part of the plaster and giving a little more strength, the reporter uses slightly flexible steel rods, such as are employed in orthopedic work for bracing shoes. They are flexible, so they can be molded to the desired shape. In putting on the dressing it is essential that the toes should point a little up; if they drag they are liable to strike things; the heel should be a little lower than the toes. A child of eight or ten years of age requires a flannel bandage two inches wide; the foot is covered in, no reverses being employed. In putting on the cotton batting it is well to tear it off the roll of the required width; it then rolls out very much like a bandage. The malleoli are thickly padded, so that the plaster may be prevented from falling in and pressing at these points. At the knee-joint where the plaster should bear pressure the padding is thinner. If the surgeon intends to take the plaster off himself it is well to partly cut it, and for that purpose a lead strip is needed. The sole of the foot is padded with a mass of cotton at least three inches thick. The plaster is now ready for application; the first two turns take in the padding on the sole and keep it in the middle line. In applying this bandage a little tighter pressure is employed than with an ordinary plaster bandage, as, because of the thick padding, the parts will stand it. When the patient is placed under the influence of ether, he must be kept under until the dressing is hard. The bandage runs up to a little above the knee. Having closed in the cotton the external metallic splints are applied; these are molded to the part and covered in with more plaster. The patient is kept perfectly quiet and the toe is held up until the plaster hardens. In another twenty-four hours the patient is allowed to put the foot to the ground.

While the plaster is still moist a knife is run along the line of lead strip, leaving several bridges, which should be marked by pencil before cutting. When the time comes to remove the plaster the bridge is simply cut through by a pen-knife and the dressing will spring off.

SEVEN CASES OF PERFORATING GASTRIC ULCER TREATED BY OPERATION, WITH THREE RECOVERIES.

Under this title a valuable paper appears in *The Lancet* of December 5, 1896, by ARTHUR E. BARKER. He says that among the most recent advances in abdominal surgery none is more interesting or more likely to yield good fruit than the operative treatment of perforating gastric ulcer. This hitherto terribly fatal accident is now shown to be well within the reach of surgery if taken in hand promptly; and there seems to be good reason to hope that as time goes on our achievements may be crowned by a success which as yet we can hardly estimate, for just as in the case of other intra-abdominal lesions the study *in vivo* by the operator has cleared up many pathological and clinical questions impossible of solution by those who only had an opportunity of examining regions and tissues after death, so may it be in the case of gastric ulcer.

The condition of the patients at the beginning of the operation varied. In the second case there was no shock and the color was very good, but the temperature was  $102.2^{\circ}$ , and the pulse 136 and intermittent; the abdomen was not markedly distended. In the first case there was not much shock; the temperature was  $103.2^{\circ}$ , the pulse 120, and the abdomen was not distended. The same was true at the time of operation in the third case, though the perforation produced shock. All of these recovered. In the fourth case, too, in which the patient lived fifteen days, there was not much shock although the temperature was  $102^{\circ}$ , the pulse 116, and the abdomen somewhat distended thirty-two hours after perforation. There was much collapse in the sixth case; the temperature was  $99^{\circ}$ , the pulse 140, and the abdomen generally distended twelve hours after perforation. Extreme collapse was also present in the fifth case, with the pulse 160 and the respiration 60, the abdomen being greatly distended all over, twenty-eight hours after perforation. Both of these cases died soon after operation. The three cases which re-

covered were operated on respectively at eight and a half, eighteen, and seven and a half hours after the accident; the other four at thirty-two, twenty-eight, twelve, and seven hours after.

In all seven cases the perforation was on the anterior stomach wall; the largest was only half an inch across. There was no evidence in any of a second perforation. The duration of the several operations was: In the first case, one hour and twenty-five minutes (recovered); in the second, just two hours (recovered); in the third, one hour and twenty-three minutes (recovered); in the fourth, one hour and a quarter; in the fifth, one hour and five minutes; in the sixth, one hour and a quarter; and in the seventh, one hour and twenty minutes. The last four died.

In regard to the operations themselves, they were carried out on the same lines except in the fourth case. Everything was done as quickly as possible; a median incision was made in all; in three a transverse cut through the left rectus muscle was added to this, the perforation being difficult to reach; in one an inguinal incision had been previously made which probably facilitated the cleansing of the pelvis very materially. In cleansing the peritoneal cavity dry sponging without flushing of any kind was employed in all; in doing this particular care was observed to carry the hand and sponge between the liver and diaphragm in order to wipe away lymph, fluid, and food. In his first case (Case 4) this point was omitted, with the result of a left subphrenic abscess. Taught by this, he was more careful in all the other cases and was surprised in each by the amount of matter which could lodge between the liver and the diaphragm. Round and behind the gall-bladder also required special cleansing, as well as the flanks and pelvis. There was no very special difficulty in carrying the hand into all these regions through the median incision. After a large experience of flushing the abdomen, he prefers dry sponging for this class of cases. A drainage-tube was inserted through a special hole in the flank in two cases, but in each appeared to do but little work, and he thinks now might have been dispensed with except in the third case, where a subphrenic abscess formed and had to be opened between the ribs. The anterior wound was drained with strands of iodoform gauze in four cases, and with the best results. One strand reached deeply between the liver and diaphragm on

each side, another to the suture in the stomach, and a fourth down behind the gall-bladder. They remained *in situ* until the fifth or sixth day, when there was always some difficulty in removing them. But he has been greatly impressed with their value; they drained well, and on removal the edges of the wound came together wonderfully. In the second case, the scar had all the appearance of one healed by first intention, without the least bulging. In no case was the ulcer cut out; the edges were simply folded well in and the closing silk stitches were deeply inserted in one or two rows by means of round sewing needles.

In the after-treatment great reliance was placed on feeding by the mouth. Small repeated doses of egg albumen and water, of brandy, beef-tea and chicken broth were begun as soon as the patient had recovered from the anesthetic. But besides this, peptonized suppositories were introduced into the rectum, alternating every two hours with five ounces of hot water.

From the experience gained in these cases he is inclined to think that success or failure depended in the first place upon the moment after perforation at which they were treated. In the next place the condition of the stomach contents which escaped among the intestines must have influenced the result. In the second and third cases the fluid found round the perforation was thin and without visible fragments of food; it was also slightly alkaline. The characters of the fluid in two other cases were the same to all appearance; one of these recovered and the other lived fifteen days. In the three remaining cases, where solid meals had been taken shortly before, large fragments of food (potatoes and greens) were present among the intestines and were producing much irritation, as evidenced by the presence of abundant lymph and dirty serum. Of course this produced much more profound shock and great distention. Whether in these two cases the abdomen could have been better cleansed by flushing is a question easily answered. Very voluminous and prolonged flushing would probably have done more in carrying away debris of food than simple sponging with the hand; but in the state in which these patients reached the operating-table they would not have tolerated any prolonged operation. As it was, one died of shock four hours after, where the operation only lasted sixty-five minutes. On the whole the writer formed the impression that dry sponging, as employed

in all these cases, is preferable to flushing; but then it must be carried out with method.

In the worst of these cases where there was terrible shock before the operation, and in another case, the pulse and general condition improved greatly on the opening of the abdomen and the escape of the gas and fluid pent up under great pressure. This ought to encourage us to operate where collapse is present rather than wait on the chance of its subsidence. But it should also be noted that handling of the stomach produced violent vomiting, which only ceased when the chloroform was pressed. It was necessary to evacuate the stomach by pressure in all cases, and he thinks this is better done with the hand through the perforation than by washing out, which is tedious. As to the after-treatment in these cases the immediate feeding by the mouth appeared to be as beneficial as after other operations on the stomach. It is hard to imagine how this could be injurious at first, while the stitches hold; and the benefit in arousing the patient from collapse is a justification for running some risk. We should feel more anxious about mouth feeding after two or three days than at first, for then the stitches might be cutting. Of course, food and plenty of fluid must also be given by the rectum at the same time. Finally, the writer has been careful in the two cases which recovered to keep the patients for a long period in bed under strict treatment for the gastric ulcer; for though the perforation may soon be soldered up after stitching, there is good reason for believing that the gastric ulcer and the generally vicious condition of the digestion takes a long time to repair, as was evidenced in one of the author's cases.

In the two cases referred to the patients are still under observation. One is seen daily and appears now, four months after the operation, to be in excellent health; she is in service again and doing her work cheerfully and well. The first case was also quite well and in service when last heard of; the third case is still in hospital, but going on well more than a month after the operation.

#### INJECTION OF IODINE IN SURGICAL TUBERCULOSIS.

CAMPANINI (*II Policlinico*, Oct. 1, 1896) gives several examples of the results of Durante's method of treatment in various cases of surgical tuberculosis. The author gives details of two cases of tuberculous joint disease—in one fifty-three injections,

some intra-articular and some intramuscular, were given; in the other forty-five injections were given. In each case a cure was effected. In tuberculous glands, especially if unassociated with a suppurative periadenitis, the iodine injections gave good results; two cases of tuberculous peritonitis were treated with decided advantage by the same method. In addition to the above the author also practiced Durante's method in two cases of lupus and one of tuberculous orchitis and epididymitis. Time alone can prove whether relapses occur with less frequency after the iodine treatment, but as far as he has tried it the author is strongly in favor of it in suitable cases.—*British Medical Journal*, Dec. 5, 1896.

#### VESICO-INTESTINAL FISTULA TREATED BY TRANSVESICAL SUTURE.

POUSSON (*L'Union Médicale*, No. 51, 1896) had a patient brought to him suffering from cystitis complicated by pneumonia. This latter symptom was attributed to ammoniacal fermentation and had lasted for three years; it was so pronounced that the patient was unable to use a public urinal. Finally fecal matter appeared mingled with the urine, thus rendering diagnosis absolute.

Endoscopic examination showed an ecchymotic spot, thus apparently locating the fistula. Hypogastric cystotomy was performed, but the opening was not found in the region of this spot of ecchymosis; the fistula was placed above the opening of the right ureter. The vesical edges were freshened and sutured. The immediate result was excellent, but on the third day gas passed by the urethra, and the following day some fecal matter escaped; this continued for six days, then gradually lessened and finally cure was accomplished.

#### TREATMENT OF FRACTURES BY MASSAGE.

FÉVRIER (*Revue Médicale de l'Est*, 1896, 13, p. 385) states that as a result of massage in the treatment of fractures, there is immediate disappearance of pain, diminution of swelling, rapid restoration of function; quick formation of callus preceding the bony union, which is likely to be voluminous; free establishment of motion, and absence of muscular atrophy.

In carrying out the treatment the hands of the masseur should be surgically clean; the skin which is rubbed should be lubricated with sterile vaselin. The first day longitudinal rubbing is practiced, avoiding the seat

of fracture; circular rubbing is indicated on the following days. The thumbs and the palms of the hands are not employed until the fourth or fifth day. Passive motion is practiced at the neighboring joints. The treatment should occupy about twenty minutes.

#### SUCCESSFUL ABDOMINAL NEPHRECTOMY FOR RUPTURE OF THE KIDNEY.

At a recent meeting of the Clinical Society of London, WALLIS (*Lancet*, October 31, 1896) reported the case of a man twenty-two years old, who had fallen from a ladder a distance of twelve feet upon a spiked railing. Though collapsed and evidently in pain, consciousness was not lost. The abdomen was rigid and rather distended. On examination it was found that one of the spikes, three inches in length, had pierced the abdominal wall nearly an inch below the tenth costal cartilage on the right side; the opening in the skin ran downward and inward, and the finger passed into the wound could be pushed on into the abdominal cavity. Soon after admission to the hospital the patient passed a pint of pure blood by the urethra. He was at once prepared for operation, and an incision made from the lower end of the punctured wound downward to the right semilunar line. A lacerated wound of the peritoneum came into view, through which the bruised intestines presented. The peritoneal wound was enlarged and large masses of blood-clots were turned out of the abdomen. Sponges were inserted and the sides of the abdominal wound held apart by two long silk ligatures. The under surfaces of the liver and the gall-bladder were exposed and found intact. The intestines in the track of the wound were bruised, and one piece of small intestine presented a tear in the external coats, through which the mucosa bulged. At the bottom of the cavity the kidney could be felt, torn almost in two; blood welled up through the wound at a great rate. The left kidney was found intact in its normal situation. The peritoneum was now divided along the outer edge of the ascending colon, and this portion of the gut pushed in toward the middle line; the left hand was passed in behind the colon, the kidney rapidly freed and brought out of the wound. The ureter was clamped, tied, and cut, the vessels were treated in the same way, and the kidney was removed. The deep muscles were considerably lacerated and bled freely. Sponges were temporarily



inserted and the abdominal cavity was washed out with saline solution. The wound was packed with iodoform gauze in strips, and dressed with cyanide gauze and blue wool, and bandaged. The patient was greatly collapsed after the operation, but reacted well during the following twenty-four hours. The wound healed without complication, and the ultimate recovery was perfect. For two days following the operation the urine contained blood, and for twelve days albumen. The quantity of urine passed in twenty-four hours averaged between forty and fifty ounces. It was pointed out that in the past rupture of the kidney had been attended with a mortality of thirty five per cent.—*Medical Record*, Dec. 19, 1896.

*CONTUSION OF THE BELLY FROM THE  
KICK OF A HORSE, FOLLOWED BY  
HEMATURIA, PERITONITIS  
AND SPONTANEOUS  
CURE.*

CAMUS (*Archives de Médecine et de Pharmacie Militaires*, No. 12, 1896) reports the case of a dragoon who was kicked in the left flank by a horse. The injury caused brief loss of consciousness followed by hematuria, vomiting, fever, meteorism, suppression of the liver dulness, extreme tenderness over the entire belly (most marked in the left flank and abdominal facies), and cyanosis, the pulse running on the fifth day to 120. Thereafter symptoms ameliorated and the patient recovered entirely.

As to treatment, the physician rejected from the first the aid of laparotomy; he applied leeches externally, and withheld food for several days, employing hypodermic injections of morphine with caffeine.

sult of this stimulation has been an improvement upon the volume for 1896, good as that one was. Most of the collaborators in this volume were also collaborators in the volume for the preceding year, with the notable exception of Dr. Hardaway of St. Louis, whose place has been taken by Dr. L. A. Duhring, than whom no one has a higher reputation as a dermatologist.

In the brief space which we have at our command it will not be possible for us to mention the various authors who have brought aid to Dr. Gould in his undertaking; and an undertaking it must have been when we consider that this volume contains nearly 1300 pages of large size, and that its indexing requires no less than sixty-two pages. This index is more accurate than that of the earlier issue and is so full and complete that information which one seeks to obtain from the body of the book is easily found, an advantage which adds greatly to the value of any scientific work. From time to time as we read over the pages we notice interesting additions to the topics under consideration made by the collaborator, his advice or criticism being enclosed with editorial brackets. At the bottom of each page are copious and, so far as we can see, reliable and accurate references to the literature which has been utilized by the collaborator.

We bespeak for this book a most cordial reception by the profession, for any book which is so useful should be well received.

TWENTIETH CENTURY PRACTICE AND INTERNATIONAL ENCYCLOPÆDIA OF MEDICAL SCIENCES. Edited by Thos. L. Stedman, M.D. In 20 volumes. Volume X: Diseases of the Nervous System. New York: William Wood & Co., 1897.

Volume X is published before Volume IX because the manuscripts for Volume IX were delayed. This volume is in all respects and general appearance identical with those which have preceded it, and deals entirely, as we have stated in giving the title, in the consideration of the Diseases of the Nervous System. Six authors contribute the 860 pages which are comprised in the book, namely: Sanger Brown of Chicago, Charles L. Dana of New York, Joseph Collins of New York, Charles S. Féré of Paris, Howell T. Pershing of Denver, and Bernard Sachs of New York.

The first article, upon Diseases of the Brain, is by Dr. Joseph Collins, who although one of the younger neurologists, is nevertheless qualified by experience at home and abroad to discuss the important topic which

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## Reviews.

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THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. A Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine. Collected and Arranged with Critical Editorial Comments by a Large Staff of Collaborators under the General Editorial Charge of George M. Gould, M.D. Profusely Illustrated.

Philadelphia: W. B. Saunders, 1897.

We are told in the Preface to this second issue of the Year-book that the cordial reception given the Year-book of 1896 has stimulated the editors to renewed enthusiasm in the preparation of the present volume, and from an examination of the pages of the present issue we can readily see that the re-

has been assigned to him. The first sixty-four pages of his article are devoted to the discussion of the important subjects of the morphology and anatomy of the brain and cerebral localization, in which he gives us a good summary of the knowledge of these important matters, and then adds a bibliography which covers nearly five pages and refers to most of the best researches which have been made upon these subjects in this country and abroad. He then proceeds to a discussion of the various forms of encephalitis and brain abscess, paying considerable attention to the differential diagnosis and the treatment, and this and all his subsequent articles are added to in value by the copious bibliography which he gives us. He briefly considers the important subject of the infantile cerebral palsies, and illustrates his text by numerous illustrations of patients suffering from the diseases under consideration. He then discusses multiple sclerosis in its various forms, hydrocephalus and parasites of the brain, thrombosis of the dural sinuses, diseases of the cerebellum, and then proceeds to a consideration of lesions in the medulla oblongata, including the various forms of bulbar paralysis and associated neuritis of the bulbar nerves. His article covers 260 pages.

In the succeeding article Dr. Dana, in the short space of thirty-seven pages, considers Intracranial Hemorrhage, Embolism and Thrombosis, including Apoplexy and Hemiplegia. No bibliographies are added to fortify the statements made by the author, and it will be seen at a glance that in the brief space which we have named it has not been possible for Dr. Dana to consider, in as capable a manner as in the article which we have just quoted, the important topics which have been assigned to him and any one of which might with advantage have covered the total number of pages which we have named.

Dr. Sachs' article on Tumors of the Brain is fifty-four pages in length, including its bibliography of two pages, and is a first-rate summary of the subject of which it treats, for although it is not as exhaustive as one would expect to find in such a volume as the one before us, Dr. Sachs has a happy way of expressing himself which renders everything he writes readable.

The fourth article, upon Diseases of the Meninges, is also by Dr. Collins, and is as exhaustive and valuable as the first one we mentioned, covering over ninety pages.

The articles upon Hysteria and Epilepsy and Spasmodic Neuroses are by Féré of Paris, and while they are not particularly strong so far as the therapeutics are concerned, add very considerably to the value of the book.

The article upon Neurasthenia, which covers but twenty-four pages, is by Dr. Dana, and is also far shorter than we expected to find in so exhaustive a work, for surely this topic is one deserving of graphic description and requires much space for its proper consideration.

The next article is by Dr. Pershing of Denver, upon The Disorders of Speech, and gives an interesting summary of much that we know concerning the curious symptoms associated with aphasia and collateral subjects. It covers fifty pages.

The final article in the volume, upon Disorders of Sleep, by Dr. Sanger Brown, which covers thirty-three pages including its bibliography, might also have been considerably enlarged and the topics dwelt upon more fully with advantage.

With each succeeding volume our opinion of this magnificent undertaking, which we at first regarded with considerable suspicion as to its ultimate success, improves, and we find among our medical friends that the profession is becoming more and more impressed with the necessity of purchasing this series.

**DISEASES OF INFANCY AND CHILDHOOD.** For the Use of Students and Practitioners of Medicine. By L. Emmett Holt, A.M., M.D. Copiously illustrated. New York: D. Appleton & Co., 1897.

Dr. Holt has presented us with a large and exhaustive work on Pediatrics, one which because of its size and scope is qualified to lay claim to the position of representing the best and most recent views concerning this important part of medical study. It remains for us, therefore, to examine his pages with interest, to see whether he has so utilized the space at his disposal as to accomplish the object which he has placed before himself in the compilation of such a volume.

One of the first things that strikes us as we read the pages is the style. While we have no one reason for expressing this opinion, we venture to state that a very considerable portion, if not all, of the book has been dictated to a stenographer, since it lacks the smoothness and conciseness which comes of wielding the pen direct, and possesses the rather short and dogmatic sentences which one has recourse to in dictating. We have met with a number of books recently in which

it seemed to us that this criticism obtained, and we think it a matter of regret that authors when taking the time and trouble necessary for the gathering together of their facts should mar their completed work by the avoidance of the necessary manual labor.

It will not be possible of course to go over the book page by page. We think that those who are enthusiastic in the discussion of infant feeding will be quite well satisfied with the chapters upon the infant's Dietary and Nutrition. From first to last the most captious critic cannot find fault with the illustrations, many of which are original and nearly all of them very well executed. By far the worst illustration which we have met with in the book is one which is designed to show epithelial desquamation of the tongue, which looks more like a horse's skull than any other object with which we are acquainted, and which utterly fails to add anything to the clearness of the text. The very good illustration of gangrenous stomatitis makes up, however, for this defect; and the plate representing the various sizes and capacities of the stomach at different ages seems to us a very good one. A considerable number of the cuts we recognize as having been taken from Dr. Holt's article in Keating's *Encyclopædia of Children's Diseases*, and several plates are also taken from the same source, although the credit is not given in their legends. It is a matter of surprise that Dr. Holt has devoted only twenty-two pages to the Gastric Disorders of Infancy and Childhood, for certainly these disorders form a very large proportion of the cases which we meet with in practice. Thus the subject of gastric dilatation covers only one and a third pages. While it is true that this condition is not so frequently met with in children as in adults, it occurs with sufficient frequency to justify more exhaustive treatment.

Ulcer of the Stomach, which is a much more rare condition and almost invariably results from tuberculosis or the ingestion of poisons, covers about one page.

In the article upon Diseases of the Digestive System, in connection with the intestines, Dr. Holt states that the highest mortality from intussusception occurs in the first year, a fact which is, of course, universally recognized by those who have studied this matter statistically. The statement, however, that such a lesion is not a common one, seems to us hardly correct in view of the fact that according to the statistics of Leichtenstern

and Bryant forty per cent. of all cases of intestinal obstruction are due to this cause. In the discussion of the statistics given by Dr. Holt the statement is not made as to whether they have been collected by himself or whether he has taken them bodily from some other author. If they have been collected by himself he has certainly not gone as exhaustively into the subject as would be possible, and from what he states in his text he has evidently relied almost entirely upon the statistics of Treves in his discussion of the subject. That the cases may be his own, however, seems to be indicated by the fact that he speaks of one of "my own cases" when discussing the total number of patients suffering from intussusception and the symptoms which they manifest.

In regard to the question of the termination of intussusception Dr. Holt states that the condition may be cured spontaneously by sloughing of the invaginated part, but that such a result is rare at all ages and is almost never seen in infancy. While it is correct to state that such cases rarely ever reach a cure it might have been well to add that sloughing of the invaginated portion of the intestine is by no means rare, and according to the researches of Leichtenstern, out of 408 cases 149 sloughed and 61 recovered. In the second edition of this book we think it would be well for Dr. Holt to include not only the statistics of Pilz, which were collected in 1870, but also those of Leichtenstern, Bryant, and those which will be found gathered together in the Fiske Fund Prize Essay of 1890 upon "Injuries and Obstruction of the Intestine."

The only other criticism of the book which we have is that the portions of it devoted to therapeutics are not as full as we think the general practitioner would like to have them. Aside from this, the remaining articles seem to us to be worthy of great praise.

It must not be thought from anything that we have said that this book is not worthy of the position which we named for it at the beginning of this review. Dr. Holt's wide clinical experience, the beautiful work which he did in connection with his article upon "Diseases of the Intestine" in Keating's *Encyclopædia*, and the numerous contributions which he has made to the literature of pediatrics, renders anything which he may write worthy of acceptance and respect by his professional brethren; and the book is to-day without doubt the best single volume and single author work upon Diseases of Children which is published in this country.

**TWO HEALTH SEEKERS IN SOUTHERN CALIFORNIA.**  
By William A. Edwards, M.D., and Beatrice Harraden.

Philadelphia: J. B. Lippincott Company, 1897.

This little book, the object of which is well described in its title, has been written by Dr. Edwards largely from a semi-medical point of view, and by Miss Harraden from a purely lay point of view, for the purpose of describing the advantages and beauties of Southern California as a health resort. It contains comparative temperature tables for San Diego and its neighborhood and the great cities of the United States, and will convey to the health seeker who is thinking of going to the Far West accurate and interesting information in pleasant text.

Miss Harraden, who is well known as the author of several contributions to literature, the most famous of which is "Ships that Pass in the Night," has written the first and fourth chapters, and Dr. Edwards has contributed the rest of the volume, which consists of eight chapters. The chapter by Miss Harraden on "Outdoor Life for Women" will be read with interest by invalids of the gentler sex.

The book is dedicated to Dr. George E. de Schweinitz, of Philadelphia.

**ANOMALIES AND CURIOSITIES OF MEDICINE.** By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D.

Philadelphia: W. B. Saunders, 1897.

This large volume of nearly one thousand pages, including the index, is another monument to the extraordinary literary industry of Dr. Gould, its chief compiler, whose previous literary works we have had occasion to review a number of times in the THERAPEUTIC GAZETTE. It is composed of eighteen chapters, which deal with Genetic Anomalies, Pre-Natal Anomalies, Obstetric Anomalies, Prolificity, Major Terata, Minor Terata, Anomalies of Stature and Development, Longevity, Physiological and Functional Anomalies, Surgical Anomalies of the Head and Neck, of the Extremities, of the Thorax and Abdomen, of the Genito-urinary System, Miscellaneous Anomalies, Anomalous Instances of Disease, of Skin Disease, Anomalous Nervous and Mental Diseases, and Historic Epidemics. There is scarcely a page in this volume that does not contain in addition to its copious text and illustrations a large number of references, varying from two or three to twenty or more. A careful examination of the volume reveals the fact that Drs. Gould and Pyle must have devoted an enormous amount of time and literary research to its production, but we cannot

avoid a feeling of regret that so much literary ability and the exercise of the power to analyze medical literature should not have resulted in the production of a book of more value in the alleviation of disease. An accumulation of statements concerning and pictures representing bearded women, monstrosities in the way of flesh and wasting, and of cases of perverted sexual and other functions is not, we think, a particularly edifying addition to medical literature, and very few if any of the cases cited will aid materially in the diagnosis of unusual forms of disease. Certainly a picture of a tattooed man is not a medical curiosity, and we do not see any use in describing a case in which some students, presumably during a drunken frolic, inserted a pig's tail into the rectum of a prostitute. We notice that a number of illustrations in this volume have been very properly taken from other well known works, as for example some of the pictures of malignant growths from the American Text-book of Surgery. With Dr. Gould's never-ceasing industry we look forward to the production of other volumes from his pen which, like his Classical Dictionary, will reflect more credit than this one upon his literary ability and medical experience. To those, however, who are fond of studying subjects such as are discussed in this volume, we can cordially recommend it as being—what it professes to be—the most exhaustive and accurate summary of medical curiosities to be found in any language.

**A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES.** By Richard C. Cabot, M.D.

New York: William Wood & Co., 1897.

Those who were engaged in microscopical work in connection with clinical medicine fifteen or twenty years ago would hardly have believed at that time that a useful and not overwrought book of over 400 pages could be contributed, at this time, upon the clinical examination of the blood; and yet Dr. Cabot, whose work on the examination of the blood is well recognized as being first-class, has succeeded in presenting us with an accurate summary of his investigations and those of many other observers in this volume. To a large extent it consists of a record of his own examinations of the blood and of the examinations which have been made by a number of personal friends.

In regard to the myelocytes of Ehrlich, Dr. Cabot tells us on page 55 that they are peculiar to certain diseases and are occasional

visitors to the blood on the border-land between pathological and physiological states. But on page 144, in the discussion of leukemia, he says that myelocytes are exceedingly numerous, and very properly emphasizes the view that they are of marked diagnostic importance in the study of this disease in its spleno-medullary form. While these two statements are not directly contradictory it seems to us that his first statement if true is a little too sweeping. The plates, of which there are a number, are by Funke of Leipsic, and while very good, are hardly up to the standard which he set for himself in the plates which he made for Thayer and Hewetson in their well known monograph upon Malarial Fever.

The book apparently does not attempt to present a careful analysis and summary of the results which have been reached so far by hematologists, although their work is referred to constantly, but it seems to reflect rather the opinions and experiences of the actively engaged blood examiner. Credit is given by the author to a large number of first-rate monographs which have been published abroad and in this country by other investigators. A copious bibliography, in which some of the text-books which consider the blood are discussed, closes a volume which should be in the hands of every one engaged in clinical medicine.

Dr. Cabot dedicates this volume, the first exhaustive one written upon the blood in this country, to Dr. William Sidney Thayer, of Johns Hopkins University.

**A TEXT-BOOK UPON THE PATHOGENIC BACTERIA FOR STUDENTS OF MEDICINE AND PHYSICIANS.** By Joseph McFarland, M.D. With 113 illustrations. Philadelphia: W. B. Saunders, 1896.

The author states in his Preface that his book is "intended to convey to the reader a concise account of the technical procedures necessary in the study of bacteriology, a brief description of the life-history of the important pathogenic bacteria, and sufficient description of the pathological lesions accompanying the micro-organismal invasions to give an idea of the origin of symptoms and the causes of death."

Only such bacteria as have been proven to be pathogenic by the lesions or toxins they engender have been described, the method of distinguishing such micro-organisms from others which are non-pathogenic being given as fully as is practicable. It may be said that McFarland has succeeded in producing a text-book which can be particularly com-

mended for the clearness of its writing and the directness of its teaching.

The illustrations are admirable and ample. There is no book of its class which will be found as thoroughly satisfactory to practitioners and students as this.

**LEPROSY AND THE CHARITY OF THE CHURCH.** By the Rev. L. W. Mulhane. New York and Chicago: D. H. McBride, 1897.

This is a little brochure on the subject which is given on its title-page, with pictures of lepers, of the chapels which have been built for them to worship in, of the missionaries who are working in that field and of those who, having contracted the disease, have passed away. To those who are interested in leprosy or missionary endeavor for the benefit of these subjects of a horrible disease, the volume cannot fail to be of very great interest; and while it is not a distinctly medical work, there are enough medical facts in it to make it of some value to the practitioner.

**AUTOSCOPY OF THE LARYNX AND TRACHEA: OR DIRECT EXAMINATION WITHOUT A MIRROR.** By Alfred Kirstein, M.D., Berlin. Translated by Max Thorner, A.M., M.D. Philadelphia: The F. A. Davis Publishing Company, 1897.

We are told on the title-page that this little book after its translation has been still further revised by its German author. Its design is to describe a method by which physicians may examine the larynx and trachea without the use of the ordinary laryngoscope. After the perusal of its pages we are inclined to think that while the descriptions which it gives are perfectly possible of application, physicians will continue to use the laryngoscope quite as frequently as before. It is, however, an interesting contribution in that it describes what may be done by skilful technique.

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## Correspondence.

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### LONDON LETTER.

By ST. CLAIR THOMSON, M.D., M.R.C.P., F.R.C.S.

Death is still busy among the leaders of our profession, and not a month—hardly a week—passes without the record of the departure of one of the epoch-makers of medicine in the Victorian age. Now I have to record the death of Sir Spencer Wells, full of years and honors. His name is known throughout the world of abdominal surgery,

and will always be associated with the history of ovariectomy. It is difficult to realize now-a-days the opposition he met with, and strange to read that in his first publications he had always to introduce the names of those present at his operation as a guarantee of authenticity. For when other arguments failed his opponents fell back on asserting that his descriptions of cases were falsified, and his record of results manipulated. He began life as a surgeon in the Royal Navy, and he was nearly forty years of age before he started work in London. When success did come it came with a rush, though indeed he had worked hard and strenuously to win it. He was in later years a great traveler, and his hale and cheerful appearance will be missed at many a medical gathering and at the autumn congresses.

I referred just now to the Victorian age. Next June the Queen will have reigned sixty years—the longest period in the history of this country for one monarch to sit on the throne. The event will of course be celebrated, but up to the present moment the Queen has resisted giving her consent to any one particular scheme to mark the event. Now however she has consented, indirectly, to allow the hospitals of London to gain the chief benefit of the celebration, by sanctioning an appeal in their favor from the Prince of Wales. This appeal is intended to reach many of those who have hitherto not subscribed to these great metropolitan charities, and so it is hoped that the large number of subscribers will compensate for the smallness of their donations. It is also intended that this fund will form a regular source of income for the London hospitals. It is satisfactory to note that in his appeal to the public the Prince has not overlooked "the fact that apart from the purely philanthropic work carried on in relief of the sick poor, we look to the voluntary hospitals for the means of medical education and the advancement of medical science."

It is curious that concentration of public attention on the hospitals should coincide with the work of the Hospital Reform Association, and with the suggestion of a Central Hospital Board for London. All three movements appear at the present moment to be in active progress, and there is good hope that in their several ways they will greatly benefit our hospitals, our schools, the public, and the profession.

Several successful cases have been published lately where ruptured gastric ulcer has

been treated by laparotomy, suture, and washing out of the peritoneum. The moment of rupture is generally well marked, and it has been found that the average duration of life after the occurrence is only twenty-four hours. Apart from the technical success of the operation, the most important factor is the promptitude with which the operation is undertaken. Once the diagnosis of rupture has been made every minute's delay rapidly diminishes the chance of success of the operation.

Some recent researches with regard to the presence of typhoid bacilli in the urine have possibly, if confirmed, great practical importance. From these researches it would appear that examination of the urine is of little value for diagnostic purposes, since the bacilli only occurred in it, when they did so occur, late in the disease; but the urine was often, though not in all cases, a serious source of infection, and should so be reckoned with. In one instance the bacilli persisted in the urine for twenty-two days after the temperature had fallen to normal.

If any one is interested to know what antiseptics have done for the lying-in woman, I would commend to his notice an address published in *The Lancet* of January 23. He will then not be surprised that the late Matthews Duncan dedicated his chief work to Joseph Lister as the man who had done more than any obstetrician to save life in childbirth.

We have had still another case in the law courts which may serve as a moral to medical men. A physician attended a child for what he considered to be "malignant sore throat." The child became seriously ill, and in their anxiety the parents suggested a consultation. To this the family attendant—an old friend—readily agreed, but before the consultant arrived the child died. On hearing from the parents an account of the illness the consultant said that the case must have been one of diphtheria. It was this unbalanced remark—for under the circumstances it could not be considered more than a mere guess—which led to the subsequent trouble. For two other children in the same family fell ill with diphtheria, and the father brought an action against his family attendant to recover the expenses he had been put to in connection with their illness, which he attributed to defendant's neglect in not enforcing suitable precautions from contagion on the occasion of the fatal illness of the first child. The defendant won his case by establishing that

the first case was one of malignant sore throat, and that he had in any case taken proper precautions in the way of isolation, etc. It was the hasty and ill-considered remark of the consultant, as the judge pointed out, which originated this painful case. It shows once again that none of us should hazard an opinion with regard to a case we have not ourselves observed, and that it is impossible to rediagnose a case when the case is over.

### PARIS LETTER.

By A. R. TURNER, M.D. (PARIS).

It may be said that the most well known physician in France at the present moment is Dr. Philippe Grenier, deputy of the Department of the Doubs. He is but thirty-two years old, and studied and graduated in medicine some years ago in Paris. Returning to his native town of Pontarlier he established himself in practice.

Some time afterwards Dr. Grenier declared that his studies of the Koran had brought him to the belief that Mohammedanism was the true religion. He consequently adopted not only the faith but the religious customs and even the external costume of the Arabs. Such conduct did not excite much comment in Pontarlier, a small town, where both Dr. Grenier and his family had long been known and esteemed for their honorable position.

It happened, however, that at the last election for deputy from the electoral district of Pontarlier Dr. Grenier presented himself as a candidate, and was elected. He sits on the left side of the Chamber of Deputies, and may be looked upon as half Socialist, half Radical, and in reality forming a party by himself.

Not only was interest in him aroused by the fact that a Mohammedan had been elected to the Chamber of Deputies, but by the exact fashion in which he carried out the principles of his new belief with reference to daily prayers and ablutions. Wherever he may be, in the Chamber of Deputies or in the streets of Paris, he goes through the required prayers when the hour has come.

The Chamber of Deputies in Paris is situated immediately opposite the river Seine. As a number of deputies had objected to the ablutions required by the Mohammedan law being performed in the dressing-rooms reserved for their use, Dr. Grenier would descend, when necessary, to the border of the Seine and there carry them out, pro-

tected from the larger crowd who would at once assemble, and who were even waiting for him, by a body of police.

Lately, however, a permanent official of the Chamber of Deputies, disgusted that a deputy should thus become the daily spectacle of Paris, offered the use of his residence in the Chamber to Dr. Grenier.

The costume which Dr. Grenier wears consists of a long Arab cloak and turban, worn over the usual European dress. In this he follows the custom of a former deputy, who having promised his electors to always appear in a blouse at the Chamber of Deputies, wore it over a frock coat.

Many of Dr. Grenier's political ideas are socialistic; others belong to him more especially as a Mohammedan. Thus he wishes to have all Mohammedans of Algeria and Tunisia declared French citizens, with all the rights of voting. His signature is: Doctor Philippe Grenier, Prophet of God.

Public opinion in France has been much excited over the possibility of the introduction of the plague into France from Bombay. All goods coming from the infected regions are now allowed to enter only at certain ports, where disinfection can be carried out. Recently a steamer running regularly between Paris and London was stopped below Paris, as on its manifest were borne several articles which originally came from the East. Though they had left India long before the presence there of any symptoms of plague, disinfection was insisted upon.

The population of Marseilles and its municipal government were even more excited than the remainder of France on account of the arrival direct from Bombay of two English steamers. Fears of a popular tumult were expressed in case they were allowed to land their cargoes. Telegrams were exchanged between Paris and Marseilles; the mayor of the latter city was writing letters of protestation, until finally the Central Government gave orders that the two boats should not be allowed to discharge their cargoes.

In connection with all this comic incidents occur. Some few days ago there arrived at the Swiss frontier, at Chiasso, in the train from Milan to Bâle, an Englishman locked into a sealed railway carriage. He was a traveler from Bombay who had landed at Brindisi. The station-master at Chiasso telegraphed for instructions to Berne, but obtaining no answer in time, returned the railway carriage to Milan, without allowing the passenger to leave it. The latter, it is reported, took the

affair very coolly, and gazed with a complacent air on the people outside, not seeming to suffer much from the plague-microbes he was supposed to carry with him. Finally, from later information, it seems that the passenger was eventually allowed to resume his journey for London.

Even were the plague to reach European countries, if treated with the serum manufactured at the Pasteur Institute the mortality should not be great.

At Amoy Dr. Yersin treated twenty-three cases by injections of serum, only two deaths occurring—one five hours and the other twenty-four hours after the injection. One of the two mortal cases was injected only on the fifth day of the disease, and the other was exceedingly serious. As the previous mortality in plague had been about eighty per cent. it may be said that the treatment by the serum was as successful as the treatment of diphtheria by antidiphtheritic serum.

The Pasteur Institute has at present about twenty horses immunized against the plague and ready to give serum.

A French writer, Dr. Leloutre, has recently given a method of self-ophthalmoscopy which may interest some. It may easily be carried out, according to the author, by means of an ophthalmoscope, a mirror, a lamp, and a lens.

A wardrobe with a mirror in the door, so often found in France, is the best to employ. Place yourself in front of the open door of the wardrobe, about twenty to thirty centimeters before the mirror, and at its edge. If you wish to examine the right eye place the lamp so that the light from it may be prevented by the mirror from striking the right side of the face. Hold the ophthalmoscope to the left eye, place the lens before the right eye, and throw the light upon the mirror in such a way that it will be reflected back upon the lens and into the fundus. The rest is only a matter of changing the position slightly until the desired result is obtained.

#### *ABSTRACTS FROM OBSERVATIONS MADE IN A DIPHTHERIA OUTBREAK.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: This outbreak occurred in November, 1896, in a country town in the northern part of Maine. It was my first battle with the disease, and it was my misfortune to lose two patients before its nature was recognized, as it presented itself in these cases in the form of suppurative tonsillitis, with distinct formation and discharge of pus, which gave relief

of all symptoms. There was no appearance of membrane upon either tonsils or uvula.

The patients were a lady thirty years of age and her daughter of about ten years. Both died of apparent sudden heart-failure, the mother's death occurring about six hours before that of her daughter, although she had not been sick as long as the latter.

The mode of death aroused my suspicion of malignant disease, and I called a consultant, but we were unable to make certain diagnosis until called to examine a throat in a neighboring family. This throat cleared up all doubts, as there was a distinct membrane already forming.

There was prompt quarantine of all affected and exposed, but only one other case developed that could possibly have come from that exposure.

Later two other cases appeared outside of quarantine, which also began with suppurative tonsillitis, but soon the membrane distinctly appeared, and with prompt isolation there was no spread of the disease.

Some two weeks afterward I was sent by the Board of Health to examine two families, and found both affected with diphtheria. Being large families there were consequently a number of cases.

No deaths occurred under my care after the disease was recognized, and all made good recoveries.

In every case I used antitoxin with excellent results and no bad effects. In nearly every case the membrane had separated within thirty-six hours after the first injection. A second injection was used only when there was not a distinct reaction within twelve hours.

I have used peroxide of hydrogen locally in the throat, and have given strychnine in heroic doses from beginning of disease and continued it through convalescence.

Without antitoxin I would be at a loss to treat a case of diphtheria satisfactorily, but with it I feel that I am using an absolute specific; for since November, 1896, I have seen and treated in this and surrounding towns twenty-seven cases without a death. I attribute the recovery in so many cases to the use of antitoxin. One of my fellow practitioners has not used antitoxin, and he has lost three cases out of seven treated.

As yet I have seen no bad effects from antitoxin, and I would recommend its use in all cases, whether seen early or late.

F. H. BADGER, M.D.

RANGELEY, MAINE.



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## Original Communications.

### TREATMENT OF CANCER OF THE RECTUM, WITH A REPORT OF TWENTY-FIVE CASES.\*

BY W. W. KEEN, M.D., LL.D.,

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If you will pardon me for alluding to the diagnosis in a paper professedly considering only treatment, there are two points so important that I wish to say a very few words in reference to them. First, the dis-

ease often escapes the attention of the family physician simply because he fails to make an examination. Not long since I saw a gentleman with a very distinct cancer of the descending colon, discovered the moment that the hand touched the abdominal wall, yet it had been entirely overlooked by his physician simply because he had never examined the abdomen. One of the cases reported below had had positive symptoms of cancer of the rectum, including bloody stools, for two years, and yet his physician had never once made a rectal touch.

The second point is that in the digestive tract cancer is not necessarily confined to late middle life or old age. We are so accustomed

\* Read before the West Branch Medical Association, at Bellefonte, Pa., Jan. 12, 1897.

to take cancer of the breast as a type, in which organ cancer before the age of forty is rare, that we are in danger of considering the same rule as applying to other parts of the body. But in the digestive tract I have known several cases occurring before thirty, and recently Czerny (*Münch. Med. Woch.*, 1896, No. 11) has reported one case in a little girl of thirteen.

Turning now to the treatment of cancer of the rectum, this is divided into the *palliative* and the *radical*. The cases suited to palliative treatment are those in which the extent of the disease is too great to allow of radical treatment or the condition of the patient is such as to forbid extirpation of the disease. By the "extent of the disease," I do not mean chiefly the amount of the rectum involved, for that is only occasionally too great to allow of radical treatment. Whether the radical treatment can be done or not depends far more on the involvement of neighboring organs. If the bladder or the prostate in the male, or the posterior wall of the vagina and the lower part of the uterus in the female, are extensively involved in the disease, it will rarely be possible to effect a cure or even to obtain recovery after the radical treatment. Yet in one case operated upon by my colleague, Professor Montgomery, in which the entire posterior wall of the vagina and the lower part of the uterus were involved, he was able not only to remove the rectum, but also at the same time the uterus, ovaries, and the posterior wall of the vagina, and obtain a most satisfactory cure. Parts of the prostate and of the bladder in the male have also been removed with success, but ordinarily this cannot be hoped for. Usually cases in which these organs are involved would be best subjected to palliative treatment only.

*The Palliative Treatment.*—This consists in colostomy, in order to allow the feces to escape from an artificial anus and to avoid the damming up of the feces in the upper rectum and the colon, or, if there be not much obstruction, to avoid the passage of the feces over the ulcerated surface of the rectum. Either of these conditions, if not relieved, is productive of excessive pain and exhaustion, and, in the case of ulceration, there may be serious repeated hemorrhages.

Formerly our only resource was a lumbar colostomy. In my experience that is a most ineffectual operation. It is very difficult to produce an effective spur between the upper and lower parts of the opening which will

deflect all of the feces through the artificial anus. Almost invariably a small, and in some cases a very considerable, portion of the fecal material, instead of escaping from the artificial anus, continues its course into the bowel below the opening, making the artificial anus therefore to that extent useless. The only reason in former times for doing a lumbar colostomy was that we could operate without opening the peritoneum, a danger of the most serious character in pre-antiseptic days. Since, however, we have learned to deal with the peritoneum fearlessly by modern methods, there is no reason why lumbar colostomy should still be practiced. Besides, in some cases, the colon cannot be found, and the small intestine has been opened by error. I remember very vividly one case (No. XVII)—in which I did a lumbar colostomy about ten years ago—in which, to gain access to the colon, I was obliged to open the peritoneum and was in the greatest possible doubt for a considerable time as to which one of the two coils of intestine was the colon. I decided, fortunately, at last upon the right one. Had I opened the other, I should have created the artificial anus in the small intestine, which would have led to speedy death by inanition. From that time to the present, excepting in one case (No. XVIII), I have invariably done an inguinal colostomy, and for some years by Maydl's method.

As this method may not be familiar to all of you, I will briefly describe it. If we have reason to believe that the cancer has not extended so far up as to interfere with, or that within a reasonable time it will involve the opening to be made in, the bowel, the operation is done in the left inguinal region. If the cancer has invaded the sigmoid flexure, then the artificial anus is made in the right inguinal region, or if circumstances make it desirable, in the transverse colon.

An oblique incision is made in the left inguinal region, the centre of which lies just above the anterior superior spine of the ilium. The peritoneum having been opened, the finger is swept from the opening externally and then posteriorly along the belly wall, when, as pointed out by J. Chalmers Da Costa (*Medical News*, June 9, 1894, p. 634), the first coil of intestine met with must necessarily be the colon. If this maneuver be followed very little difficulty will be experienced in finding the colon. Ordinarily even this is unnecessary, for the colon will present itself at the wound or be found by the finger the

moment it enters the abdominal cavity. A loop of colon is then drawn out through the wound, and the upper colon is drawn down until all the slack is taken up. The object of this procedure is twofold: First, if the operation be a merely palliative one, by drawing down all of the slack we can to a great extent prevent or lessen the amount of subsequent prolapse of the bowel; secondly, if the radical operation is done later there will be less difficulty in drawing down the stump of the bowel. With a pair of hemostatic forceps the mesentery is perforated and a glass or other disinfected bar is passed through the opening. The bowel is now secured to the belly wall at the upper and lower ends of the incision by a transverse suture, so as to prevent any hernia resulting from efforts at vomiting, and the wound is then closed, excepting the central part where the loop of bowel protrudes. Sometimes I have sewed the parietal peritoneum to the skin so as to bring a large surface of peritoneum instead of the cut edges of the belly wall in contact with the bowel, and thus secure an earlier adhesion. How early this takes place is well illustrated in Case II. Five hours after the Maydl operation was completed, the patient complained of a great deal of pain from flatus owing to too sharp a kink of the colon over the glass bar, as I had not allowed quite sufficient slack of the bowel over that obstacle. Accordingly, as I had not in that case secured the bowel by any sutures, I seized the bowel with the finger and attempted to draw the upper portion down to a slight extent. The adhesions already existing between the intestine and the belly wall were so strong that it required considerable effort to loosen the bowel.

Instead of the glass bar which I ordinarily use, I have on two occasions passed a rope of iodoform gauze through the opening and secured it to the skin on each side by a stitch, so as to keep it taut. This answered the purpose perfectly. Another expedient I have also tried on two occasions with satisfaction (Cases XXI and XXII) is that suggested by Bidwell (*Lancet*, 1895, i, 753). Instead of the bar or rope one or two stitches are passed through the opening in the mesentery, and by means of the stitches the margins of the skin on each side are sewed together under the loop of bowel, the skin thus replacing the bar or gauze rope. Should the necessity for immediate opening of the bowel exist, as in the case of a child with an imperforate rectum, upon whom I operated forty-

five hours after birth, the bowel is then sutured all around to the skin by either an interrupted or better a continuous silk suture, when it may be opened fearlessly at once.

In dressing such a case, I soon found one little difficulty. If the gauze dressing is placed directly on the intestine, in a very short time after the operation the gauze becomes adherent to the bowel and is removed with some difficulty. To avoid this a small piece of disinfected rubber dam or oiled silk is placed over the bowel, and no such adhesions then take place. If the bowel is not to be opened at once, I have usually waited till the second or third or even till the fourth day, and then opened it either in the axis of the bowel or transversely, according to the need. If it is the intention that the opening in the colon shall only be temporary, the incision should be made longitudinally, so that it may be closed at a later operation. If the opening is intended to be permanent it is best to make a transverse incision; either then or later this is carried all the way down to the bar, rope, or skin, whichever method is employed, so as to cut the bowel entirely through. Usually one or more small vessels in the mesentery will spurt; these can be seized with hemostatic forceps and tied with silk. If there is any redundant bowel protruding, it may be resected to the level of the skin. All of this can be done without an anesthetic, as it causes little or no pain.

The ultimate result of a Maydl operation is most satisfactory. The patient can defecate either in the standing position or lying on the side. Usually a single or at most two movements of the bowels occur in the twenty-four hours, and meantime the patient is able to go about and attend to his ordinary occupations without the slightest inconvenience; no odor is perceptible, and the patient can enter into an active business and social life with perfect security. In Cases II and III this is notably the case. If diarrhea occurs, then there is apt to be trouble, and the patient is obliged either to remain indoors or to dress the wound much more frequently.

The mode of dressing such a wound is best described in the two cases just referred to. Some protrusion of the bowel occurs occasionally, but not to such an extent as to become a serious annoyance.

The advantages of a Maydl operation as a preliminary to the radical operation will be referred to later on.

Patients who are not amenable to a radical operation, and in whom the colostomy is done

merely for palliation, are rendered very much more comfortable and life becomes far more bearable. Its danger is very slight and its advantages very great. Incontinence being the exception rather than the rule, they can adjust their lives very readily to the varied conditions in which they find themselves. So comfortable have been several of my patients that they have been unwilling to submit themselves to a second operation for the closure of the artificial anus, being persuaded that they are more comfortable with the anus in a position where they can dress it personally than if they were to have an artificial anus at the end of the spine.

*The Radical Treatment.*—Until a few years ago no case was deemed suitable for radical operation unless the growth was within reach of the finger and was so limited as to require the removal of only a small portion of the rectum. This was still the prevailing opinion among the English surgeons so late as 1889. Mr. Allingham deprecated the removal of any growth, even four inches up the bowel, as unscientific and unsurgical, and Mr. Treves in his "Operative Surgery" states that the cases suited to excision are "comparatively few in number," and that "very rarely does the excised portion measure more than three inches in length. In no case should the peritoneum be deliberately opened." My own and many other reported cases show that these are by far too conservative views. We owe the extension of the modern radical treatment of cancer of the rectum chiefly to the enterprise and audacity of German surgeons. American and later English opinion (Ball, in Treves' "System of Surgery," ii, 787) seems to have recently undergone a rapid change in the direction of far more radical interference, so that it is now not uncommon to see cases reported in which six or eight or even ten and twelve inches of the rectum (Purcell, *Lancet*, 1896, i, 725) have been removed. Several of my cases illustrate extensive resections of six to nine and a half inches; in fact, these cases are more than a resection of the rectum; they involve a considerable portion of the sigmoid flexure of the colon. It may be stated, as a general rule, that all portions of the rectum and colon are now amenable to the radical treatment, if other conditions are not such as to forbid it. Those that are too low down to be reached by a celiotomy can be reached by the sacral method, and those too high up for the sacral method can be attacked by celiotomy. In fact the entire alimentary canal, except a

portion of the esophagus, is now accessible to the surgeon.

The radical treatment may be considered under two headings: first, the preliminary treatment; second, the actual resection or amputation of the rectum.\*

In the preliminary treatment the rectum must be thoroughly unloaded of its contents in all cases, which, if there is any obstruction of the bowel, are very considerable and may be enormous. Ordinarily surgeons lay down the rule that several days, amounting to a week or ten days in the opinion of some, are necessary for this preparation. My own experience leads me to believe that a much longer time is necessary to unload the bowels in the case of serious obstruction. For instance, in Case I a week was employed in unloading the rectum, and I supposed that it was reasonably empty, yet at the operation the field of operation and the towels and sheets around the patient were flooded with a continuous stream of fecal matter, which poured out for such a length of time that I was unwilling to prolong the cleansing of the bowel and terminated the operation without having effected a complete evacuation of the colon. In Case V seventeen days were employed in daily efforts, by moderate laxatives and repeated enemas, to cleanse the bowel, and yet it was found loaded with feces above the obstruction. The same condition has been found at operations by Schwartz after three weeks' preliminary attempts at complete evacuation, and by Kraske after a month. The accumulation has been so great that I have been compelled to believe that in some cases almost the entire colon was filled with fecal matter due to the obstruction. If such difficulty exists in emptying the bowel, how much more difficult will it be to disinfect it!

Whether a preliminary colostomy shall be done or not will depend chiefly on the amount of bowel to be removed. If we have good reason to believe that the cancer does not extend so high as to require the opening of the peritoneum, I should then be perfectly willing to forego a colostomy and trust to repeated efforts at unloading the bowel by moderate laxatives, covering not less than one week, and if necessary two or three. In administering these it is very necessary, however, to be watchful of the strength of the

\* Resection is the removal of a part of the rectum in its continuity, the anal portion being left. Amputation is the removal of the lower end of the rectum, including the anus.

patients. They are usually persons who have been very much exhausted by the continued pain and obstruction, and more or less by the auto-infection which has taken place, and if they are further weakened by active purgation they will be rendered unable to endure the operation. Usually, however, in cases where the cancer is low down, involving the third part of the rectum, this preliminary cleansing is sufficient without colostomy.

The great danger of all resections or amputations of the bowel, excluding primary shock and hemorrhage, is *infection*. If the peritoneum be not opened this danger is minimized, so that even should the wound become infected it will cause a local suppuration, but not peritonitis; hence this confessedly often imperfect method of cleansing the bowel may be sufficient in such cases. If, however, the cancer is situated more than three inches, or especially if more than four inches, above the anus, it is practically certain that the peritoneal cavity must be invaded. (Yet in Cases X and XIII I removed four and five inches without opening the peritoneum.) In all such cases I am, therefore, decidedly in favor of doing a preliminary colostomy for three reasons: first, it will greatly improve the general health; secondly, it will relieve the obstruction and consequently the pain; and thirdly, it enables us to disinfect the bowel far better than without a colostomy. By means of a catheter introduced into the inferior opening of the Maydl operation, the lower rectum can be washed out from above and the bowel not only cleansed of its fecal contents, but also to a large extent, though never completely, disinfected by a boric acid solution or a very weak bichloride solution, followed by a copious washing out with boiled water. But what is much more important, the contents of the bowel being deflected through the artificial anus, any later infection from soiling by feces is prevented. In women the vagina also should be well disinfected.

In resection or amputation of the rectum, if the anal portion and the anus itself is involved, then the rectum must be *amputated* at a point at least an inch above the growth. If an inch and a half or two inches above the anus are free, then it may be best to do a *resection* of the diseased portion and in some cases to reestablish the continuity of the bowel by methods to be discussed shortly.

The mode of access to the bowel has been entirely revolutionized by the efforts of Kocher, Kraske, and their followers. The

old operation through the perineum only allowed us to remove growths at or but little above the anus, but did not allow us to attack growths which were beyond or just within reach of the finger. Kocher took the first step toward the modern operation by the removal of the coccyx in 1874. This method was employed in Cases VIII and IX. In 1885 Kraske (*Arch. für Klin. Chir.*, xxxiii, 563) practiced a more radical operation by removing not only the coccyx but by chiseling off an oblique portion of the sacrum from opposite the left third sacral foramen to the lower left border. Since then his followers have increased the extent of the resection step by step, until Rose has even resected the sacrum transversely at its junction with the ilium. So extensive a resection of the sacrum, however, does not seem to be either necessary or desirable. A resection up to the third sacral foramen, being careful not to injure the third sacral nerve, should be the limit of operative interference with the bone, since if the third nerve is injured the innervation of the bladder is apt to suffer and incontinence of urine may result. I have never gone beyond that point, but have in several cases resected the sacrum transversely at that level, and have never seen the slightest trouble either from interference with the innervation of the bladder or trouble within the spinal canal itself, though in Cases II and V it was recognized that the spinal canal was opened. Not only can the rectum and part of the sigmoid flexure of the colon be resected through such an opening, but repeatedly the uterus and ovaries have been removed through the same opening.

I have always employed ether as the preferable general anesthetic, but in Cases XXII and XXIII I employed Schleich's fluid very successfully as a local anesthetic.

The operation is done as follows: The patient lies upon his side, whether upon the left or the right is, I think, a matter rather of the preference of the operator than otherwise. Those who are right-handed will, as a rule, find it more convenient to have the patient lie upon the right side. An incision is made from the posterior inferior spine of the ilium, curving toward the coccyx; it is then prolonged in the middle line nearly to the anus. If it is necessary to remove the lower part of the rectum, including the anus, then from the end of this incision two elliptical incisions are carried around the anus, one upon each side. If, however, the anal portion is to be preserved, the incision terminates just behind

the anal aperture. Sometimes I have found it desirable at the upper end to make an incision toward the right side in order to free the right side of the sacrum. The incision is carried directly to the bone, and the soft parts are rapidly dissected away from the bone till the edge of the sacrum and the sacro-sciatic ligaments are reached. These are divided and the soft parts separated from the left side of the coccyx and sacrum. The hemorrhage is apt to be quite free, but is arrested either by hemostatic forceps or by pressure with gauze sponges aided by hot water if necessary. But I usually waste little time on the hemorrhage until the soft parts are completely divided from the edge of the bones. Then the hemorrhage is arrested. The soft parts are then divided upon the other side of the sacrum and coccyx. With the finger, the Allis dissector, and a pair of blunt scissors curved on the flat, we now loosen the rectum from the anterior surface of the sacrum and coccyx, the tissues not readily loosened being cut either with the knife or the scissors. The hemostatic forceps or sponge pressure is then again required to arrest the hemorrhage. Commonly I pack with gauze sponges, and while the hemorrhage is being checked proceed to the resection of the sacrum. The middle sacral artery will require ligation. I do not usually chisel the sacrum as recommended by Kraske and others, but with a large pair of bone forceps I divide the sacrum transversely at the fourth sacral foramen if it is pretty clear that this will be high enough, or I resect directly at the third foramen. Occasionally when I have divided the bone at the fourth I have found it necessary later to take off a second piece with the forceps. Not uncommonly, as soon as the bone is resected, free hemorrhage takes place from its cut surface. Sometimes the vessels can be crushed between the jaws of the hemostatic forceps, but in any case in which the hemorrhage is troublesome, Horsley's putty will immediately arrest it.

Having laid bare the posterior portion of the rectum, we now proceed entirely to isolate it, first upon one side and then upon the other. This is best done by the finger or by blunt dissection. The inferior mesenteric arteries, one on each side, require careful ligation, as they are large vessels. Having separated it upon the two sides it must next be separated from the structures in front of it. Here considerable care must be used, especially in the male. In Cases III, V, and VIII, for instance, when this separation was

effected, the bulbous portion of the corpus spongiosum, the membranous urethra, the prostate and a portion of the bladder were all in sight. In order to avoid danger, especially to the urethra, it is generally wise to insert a bougie in order to warn us of the near presence of the urethra, prostate, and bladder; this is particularly needful if the adhesions of the growth are at all marked. In women the connective tissue between the rectum and the vagina enables us to separate the rectum from the posterior wall of the vagina with relative ease if it be not involved, but very often the growth has involved this tissue and may make the rectum very adherent to the vagina. As already stated, if the wall of the vagina itself is extensively involved, as a general rule it would seem wiser to forego any operation—a rule, however, which the case of Montgomery proves not to be absolute. If the vagina be only moderately involved, as in Case VI, a V-shaped portion, including all the diseased tissue, should be removed and the incision closed by sutures.

Having isolated the rectum at the lower portion, it must be freed upward beyond the growth. Traction will bring a large portion and perhaps the whole growth well into view. In freeing the rectum higher up, care must be taken in two directions: first, that the meso-rectum, when we reach it, shall be divided in such a way as not to interfere with the vascular supply lest the stump should undergo necrosis; second, especially upon the two sides and in front the danger exists of opening the peritoneum. If this can be avoided it is far better to do so, as it diminishes greatly the danger of septic peritonitis. If the growth extends high up, however, it will be necessary to open the peritoneum, and this should then be done purposely. Once it has been opened the bowel should be drawn down far enough to clear the growth by at least an inch and a half or two inches. As soon as the rectum is drawn down to this extent the opening in the peritoneum should be immediately closed by suturing its border to the anterior surface of the rectum. This brings peritoneum in contact with peritoneum and insures an almost immediate closure of the opening in the peritoneum, and so avoids a septic peritonitis. Careful search should now be made for any glands which may be diseased. They lie posterior to the rectum. Every gland which is discovered should be removed.

In all the manipulations to this time it is of great importance if possible not to have

opened the rectum. Sometimes it is so friable from the growth that this cannot be avoided, but where possible it will be easily seen that if we can avoid opening the rectum until after we have closed the peritoneal cavity the danger of septic infection is vastly less. I cannot at all agree with McCosh (*New York Medical Journal*, Sept. 3, 1892), who advises that if the peritoneal cavity has been opened, no attempt be made to close it, but that we shall rely upon packing with iodoform gauze. Suturing as I have described it can be done easily and accurately, and it will protect the peritoneal cavity from a possibly fatal infection far better than by packing with iodoform gauze. The bowel is now divided at a point at least an inch above the growth, the stump being seized with hemostatic forceps, which can be placed at points which will control the arteries, of which there are usually several that bleed. The diseased portion of the rectum is then drawn out and either the entire lower part is amputated or such portion of it is resected as is necessary. If it is perfectly clear from the beginning that an amputation rather than a resection of the rectum must be done, then it is desirable, I think, to begin from the anal end and work upward. Whether we shall work upward or downward will depend upon the exigencies of each case. Campenon (*Centralblatt für Chirurgie*, 1895, 272), Rehn (*Wiener klin. Woch.*, 1894, 249), Byford (*Annals of Surgery*, November, 1896, 631), and Bristow (*Medical News*, Dec. 5, 1896) have also attacked the cancerous rectum through the vagina. Maunsell of Australia (*American Journal of the Medical Sciences*, March, 1892, 245) proposed a new and ingenious method of intestinal anastomosis by invagination through a temporary opening which has been applied to the upper rectum by Hartley (*New York Medical Journal*, Oct. 22, 1892, 464), of which the simple model I show you will give a clear idea. It is only applicable to a few cases of limited growths high up in the rectum or in the adjacent sigmoid flexure, but is there a most valuable method.

As an addendum to the consideration of Kraske's operation for cancer, I may add that it has been utilized in syphilitic stricture of the rectum by Herczl (*Annals of Surgery*, September, 1892, 267) and lately by Higgins (*Boston Medical and Surgical Journal*, May 14, 1896, 485), Elliot (*Medical News*, Oct. 17, 1896, 436), and a few days ago by myself in operating for imperforate rectum.

*Temporary Resection.*—The methods spoken

of thus far have all comprehended the entire removal of a portion of the sacrum and all of the coccyx. A half-dozen different methods have been devised by which the sacrum and coccyx are divided longitudinally, transversely, or obliquely, without separating the flaps of skin from the bone. In other words, an osteoplastic resection, such as we often do in the skull, is made. The advantages claimed for this method are: first, that it restores the integrity of the bones; second, that in women who are operated on before the termination of their child-bearing period the integrity of the pelvic planes is restored by not disturbing the sacro-sciatic ligaments. Sieur (*Arch. Prov. de Chir.*, June, 1896, 333) states that there is but a single case reported (Lihotsky, published by Hochenegg, *Wiener klin. Woch.*, 1889, No. 30) of a woman successfully giving birth to a child after such an operation. Morenstein (quoted by Gerster, *Transactions of the American Surgical Association*, 1895, xiii, 93) narrates, however, a second in which, while the parturition was normal, the woman died of infection from a sacral fistula through the hand of the accoucheur. The birth being normal in both cases, this object seems to me to be of very small moment. I cannot see also the importance or necessity of replacing the temporarily removed sacrum and coccyx. In all the cases in which I have operated that have survived, there has not been a single complaint of inconvenience from the loss of the coccyx and part of the sacrum. Indeed in Case II the restoration to function of the perineum and bones of the pelvis is such that he rides a bicycle, and in Case III the same diversion has been begun, four years after the operation. I cannot, therefore, think that it is important that the bones should be replaced, and it certainly adds to the danger. Union of the bones is not by any means so readily obtained as union of the soft parts, and if the replaced bone becomes infected or necrotic, it adds not a little in my opinion to the danger. I have, therefore, always removed the bone entirely.

*Treatment of the Bowel after Amputation.*—

If the lower end of the rectum has been amputated the only question is, What shall be done with the upper end? I have in most instances simply attached it to the lower end of the resected spine. If no artificial anus has been made, it is essential that the resected end shall fulfil hereafter the function of the anus. We can almost always bring it down to the end of the spine, and I have never had any difficulty in attaching it there.

The objection, of course, to this method is that there being no sphincter, the patient has no control over his motions. This is by no means always the case, though unfortunately it is apt to be one of the disagreeable sequels of such an amputation. To avoid this absence of sphincter Gersuny (*Centralblatt für Chirurgie*, 1893, No. 26) proposed that the end of the bowel should be seized by two forceps and twisted a half or even a whole revolution so as to make an artificial sphincter by the twist. I have twice resorted to this method (Cases VIII and XIII) and have regretted it in each instance. I have not been able to secure the twisted and puckered end of the bowel to the adjacent soft parts so that infection did not take place between the sutures; and though the patients recovered, yet practically the method was worth nothing, or rather was worse than worthless, since it led to the infection. Gerster, Marcy and others, however, have had more success and approve of the method. Willems (*Centralblatt für Chirurgie*, 1893, No. 19) has tried to meet the difficulty in another way by carrying the end of the bowel through the fibres of the great gluteal muscle just as in a gastrostomy we utilize the fibres of the rectus so as to make them serve as a sphincter. I have never tried this method.

In case an artificial anus has been made in the colon as a preliminary operation to the radical extirpation, in thinking over the matter I am inclined in my next case to close the lower end of the bowel at the point of section, leaving the artificial anus to serve not only for the escape of the feces from above, but also as an outlet for the small amount of mucus that will gather in the rectum below the artificial anus. In fact, in view of the remarkable results obtained by Obalinski, Eiselsberg, Luhrs (*Centralblatt für Chirurgie*, 1896, 809, 830 and 1007) and others from total exclusion or closure of a large part of the bowel about the caput coli, I have contemplated even the possibility of closing both ends of that part of the rectum below the Maydl operation.

#### *Treatment of the Bowel after Resection.*—

If sufficient of the anal portion of the rectum is healthy it may be preserved, thus preserving the sphincter intact. Though in the majority of cases this will not be possible, yet in a few it may do very well. In that case the attempt should be made if possible to restore the continuity of the bowel so as to obtain the advantage of the normal sphincter. Circular suture of the two ends has been tried

repeatedly, but unfortunately fails from tearing out of the stitches owing largely to the amount of traction upon them; and this giving way of the stitches is followed by infection of the wound or by a fecal fistula. The use of Murphy's button for uniting the two ends has been practiced very rarely and not very successfully. I have tried it but twice. In Case I a septic peritonitis carried off my patient as a result of the secondary operation in which I used the button thirteen months after the first operation. In Case XV the button also proved fatal from sloughing of the bowel. Hochenegg (*Wiener klin. Woch.*, 1889, No. 30) has proposed to solve the difficulty in an ingenious way which my colleague, Professor Montgomery, resorted to some time since in a case, but with an unfortunate result. He seizes the upper end, draws it through the anal end, and attaches the upper end to the skin around the anus. To facilitate adhesion of the upper end to the inner surface of the anal portion the latter would best be deprived of its mucous membrane by thorough curetting or by the scissors. The sutures of course always tear out, but before they have torn out the adhesions are sufficiently strong in some cases to hold the bowel approximately at least in place, and restores the continuity of the lower portion of the digestive tube. If this—which I think is the best solution of the problem—cannot be done, then I prefer to remove the lower portion entirely and attach the end of the rectum to the resected spine or close it as I have above suggested.

The results should be considered in three aspects: First, as to immediate mortality; second, as to ultimate cure; third, as to comfort after the operation.

First, *the immediate or primary mortality.*—Sieur (*loc. cit.*) states that the mortality reported by Iversen in 1890 was 57 per cent.; Schede, 25 per cent.; Czerny, 19 per cent.; Albert, 10.9 per cent. Sieur collected in France 95 operations with 37 deaths, a mortality of 38.9 per cent. Of the 37 who died, 11 died from hemorrhage and shock and 18 from septic infection, leaving 8 from other causes.

McCosh in 1892 (*New York Medical Journal*, Sept. 3) collected from seventeen different authors, all German surgeons, excepting Cripps in England (thirty cases) and Kelsey in America (seven cases), a total of 439 cases with 84 deaths, a mortality of 19.1 per cent, which may be taken to represent the average mortality at that time, and probably it is not far from that at present. The mortality of



my own cases of extirpation (I–XV) is 20 per cent.

Secondly, *the ultimate cures*.—McCosh collected from one English and nine German surgeons 375 operations, of whom thirty-two were perfectly well at the end of four years, the limit usually assumed as assuring a permanent cure, to which should be added a certain number of the 375 cases which had not yet reached the four-year limit, some of whom undoubtedly would be permanently cured. Eleven or twelve per cent., therefore, at that time was an approximately correct proportion of absolute cures. I believe it will be found much greater as time goes on.

Of my own fifteen extirpations twelve survived, and four have reached or passed the four-year limit, giving a present percentage of  $33\frac{1}{3}$  per cent. of permanent cures, and Case XIII has nearly reached the three-year limit without return. Case XIV may survive to or beyond the four-year limit. Had Case I not been operated upon the second time he might have been as fortunate. These cases would still further increase the percentage of recoveries. Even where cure is not effected, just as in cancer of the breast, life is very much longer than is the case after a simple colostomy; probably on the average by eighteen months. It must not be forgotten also that in some cases where a relapse has followed, a second or even a third operation has resulted in permanent cure.

Thirdly, *as to comfort after operation*.—As compared with the damming up of the feces, with its alternate diarrhea and constipation and its dreadful pain, incontinence is preferable. Moreover, a large proportion of the patients do not suffer from incontinence, excepting when they have diarrhea, and if an artificial anus is made after Maydl's method, as several of my patients prove, the comfort is almost absolute. Case II is a gentleman in the first social position, who has traveled along the shores of the Mediterranean and in various social centres of Europe, mingling freely with his friends and acquaintances without many of them even knowing that he has ever had such an operation. He rides a bicycle and is in every respect restored to his normal life.

Case III is another instance of equally perfect restoration to the activities of life. He is a merchant in a neighboring city and comes to Philadelphia in the morning, goes among his business friends making his pur-

chases and attending to his usual business as if nothing had ever happened; and many of his acquaintances also are not aware that he has ever had an operation performed.

The first of these cases is now two months past the four-year limit, the other has just reached the four-year limit.

Case IV, after four years, is hale and hearty and is almost as comfortable as the other two.

Case XI also was able to enjoy an active business life for nearly all of the four years he survived the amputation of the rectum, and died of an intercurrent affection.

Case XIII for two years and ten months has been most comfortable and has no incontinence.

Case I for the year that he lived was able to resume his duties as a clergyman with comfort.

*Contraindications to Operation*.—I have already referred to the principal contraindications, namely, such extensive adhesions to neighboring organs and their involvement by the cancerous growth that it would be better simply to do a palliative colostomy, and disease too extensive to allow of removal. Besides these, however, there are other contraindications which should not be forgotten which exist in connection with the general state of the patient—e.g., if the patient is too old or is too feeble to withstand the serious shock of a resection or amputation of the rectum (as in Cases XIX, XXII and XXIII). I have never been able to accomplish the operation in less than an hour and a quarter, and sometimes even two hours. In very rare cases somewhat more time may be required to do it. Such an operation, therefore, is a very serious shock and must not be undertaken in persons of such age or general health that they could not withstand it. The general condition of the organs of the chest and abdomen should be considered. Cases of pulmonary trouble, especially of emphysema and bronchitis, should not be operated on if we can spare a reasonable time for the purpose of relieving them of the pulmonary complications. I need not call attention, I am sure, to the necessity of examining the abdominal organs, especially the kidneys, for evidences of Bright's disease or pyelitis, and also all the abdominal organs for possible secondary deposits of cancer, especially in the liver. In women also the breasts, uterus and ovaries should be examined, for if cancer exists in other organs besides the rectum, no prudent surgeon would think of doing an

operation. In case the general health has been broken down by pain, especially the pain caused by rectal obstruction, a patient whose rectum cannot be operated on to-day can occasionally be put in good condition for a later operation by making an inguinal anus to relieve the discomfort and pain. This relief is sometimes so marked that the patient's appetite, sleep and general health improve astonishingly in the course of a few weeks and make a later operation possible. To illustrate the above remarks the following reports are taken from my case-book:

The mortality of the twenty-five cases recorded below is as follows:

**SERIES 1.—EXTIRPATION BY KRASKE'S OR KOCHER'S METHOD.**

Case I recovered from the operation, but died from septic infection thirteen months later on attempt to reestablish the continuity of the bowel.

Case II survived the operation four years and two months, and had no recurrence during that time.

Case III survived the operation four years, and had no recurrence.

Case IV survived four years and one month, with no recurrence.

Case V recovered; no later history.

Case VI died from shock thirteen hours after operation.

Case VII died from uremia fifty-six hours after operation.

Case VIII recovered; no later history.

Case IX recovered; no later history.

**SERIES 2.—EXTIRPATION BY THE PERINEAL ROUTE.**

Case X recovered from operation; no later history.

Case XI died four years later from acute diarrhea; no return up to that time.

Case XII recovered; no later history.

Case XIII has survived for two years and ten months without recurrence.

Case XIV is still living, after ten months.

**SERIES 3.—EXTIRPATION BY CELIOTOMY AND USE OF MURPHY'S BUTTON.**

Case XV died from sloughing of the bowel on the third day after operation.

**SERIES 4.—INOPERABLE CASES IN WHICH LUMBAR COLOSTOMY ONLY WAS DONE.**

Case XVI recovered from the operation, but died about two years later.

Case XVII died about one year after operation.

Case XVIII died from acute entero-colitis twenty-four days after operation.

**SERIES 5.—INOPERABLE CASES IN WHICH INGUINAL COLOSTOMY (MAYDL'S METHOD) WAS DONE.**

Case XIX recovered from operation, but died from exhaustion thirty-one days later.

Case XX also died from exhaustion fifteen days after operation.

Case XXI died on the fifth day from exhaustion.

Case XXII recovered; no later history.

Case XXIII died from gangrene of foot resulting from femoral thrombosis thirty-seven days after operation.

Case XXIV died from exhaustion two months after operation.

Case XXV died from exhaustion after surviving the operation nearly three years.

**SUMMARY.**

Grouping together the various series, it will be seen that in the first three there were fifteen cases in which the growth was extirpated. Of these fifteen, twelve recovered and three died from shock, uremia and sloughing of the bowel respectively.

Of five of the twelve cases, no later history has been obtainable.

Of the other seven, one is living after four years and two months without recurrence; one is living after four years and one month without recurrence; one is living after four years without recurrence; one lived four years and died without recurrence; one is living after two years and ten months without recurrence; one died thirteen months later from septic infection after a second operation; one is living after ten months without recurrence.

This gives at least  $33\frac{1}{3}$  per cent. of definite cures (four year limit) in the twelve operative recoveries.

Of Series 4 and 5, the inoperable cases in which a lumbar or an inguinal colostomy was done, there were ten cases, of which nine recovered and one died on the fifth day from exhaustion.

Of the nine who recovered, the ultimate history of eight is known: One lived nearly three years; one lived about two years; one lived about one year; and five died in periods of from fifteen days to two months.

Of the whole twenty-five cases, twenty-one made a recovery from the operation and four died, a mortality of sixteen per cent.

THE RELATIVE VALUE OF DIGITALIS IN  
ORGANIC VALVULAR DISEASE  
OF THE HEART IN  
CHILDREN.

BY H. A. HARE, M.D.,

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In the treatment of cardiac valvular disease with failure of compensation in children the writer of this article has found that in a certain proportion of cases the use of digitalis does not produce the good effects usually met with when it is given to adults, and he first called attention to this fact and to the value of strophanthus as a substitute for digitalis in children in a short article contributed years ago to the *University Medical Magazine*. While he is not to be understood as doubting the usefulness of digitalis in the heart lesions of children, he believes that it must be given even more guardedly than in the case of the adult, and not commonly fails to do good. This failure seems to depend upon the fact that cardiac arrhythmia develops and signs of auricular distention appear as soon as enough digitalis is given to maintain the improvement desired. To such an extent has this been the case that I have almost entirely given up the use of digitalis in persons under puberty, and resort to strophanthus in heart lesions and alcohol in heart failure resulting from the fevers such as pneumonia. With the object of determining whether other clinicians had reached similar conclusions I sent the following questions to a number of well known physicians interested in pediatrics, and have received the following replies:

1. Have you found that digitalis is as useful a drug in the treatment of cardiac valvular affections in childhood as it is in the same disease in adults?

2. If so, have you noticed that any particular variation in dose or in frequency of administration from that used in adults is necessary to produce good effects?

3. If not, what has been the apparent cause of its failure and what disagreeable symptoms has it caused?

4. What cardiac tonic or stimulants have you found most useful in this class of cases in place of digitalis?

5. Has strophanthus done well in your hands in such patients?

These questions were sent to Dr. L. Emmett Holt, Professor of Diseases of Children in the New York Polyclinic; Dr. J. P. Crozer

Griffith, Clinical Professor of Diseases of Children in the University of Pennsylvania; Dr. W. C. Hollopeter, Professor of Diseases of Children in the Medico-Chirurgical College of Philadelphia; Dr. Abraham Jacobi, Clinical Professor of Diseases of Children in the Medical Department of Columbia College; Dr. J. Lewis Smith, Emeritus Professor of Diseases of Children in Bellevue Hospital Medical College; Dr. Reynold W. Wilcox, Professor of Therapeutics in the New York Post-Graduate Medical School; Dr. Frederick Forchheimer, Professor of Diseases of Children in the Medical College of Ohio; Dr. E. E. Graham, Clinical Professor of Diseases of Children in the Jefferson Medical College of Philadelphia.

The answers to Question 1—Have you found that digitalis is as useful a drug in the treatment of cardiac valvular affections in childhood as it is in the same disease in adults?—are as follows:

Dr. L. Emmett Holt thinks digitalis as useful as in adults.

Dr. Griffith agrees with him.

Dr. Hollopeter does not find it as useful.

Dr. Jacobi thinks that children bear digitalis better than do adults.

Dr. Graham replies: "A very useful drug; applicable to more cases than any other one drug; is as useful in children as in adults."

Dr. J. Lewis Smith evidently finds digitalis useful in the heart disease of children, for he says: "I believe it is efficient and safe when given to children over the age of five to six years, but it should not be given oftener than six or eight hours. To children of eight years the dose of the infusion is a teaspoonful, which should be discontinued or given less frequently when the characteristic symptoms begin to occur. Six or eight drops of the tincture may be given in place of the infusion and with an alcoholic stimulant or camphor." Dr. Smith believes that it is a matter of the greatest importance to obtain a leaf of the best quality, and its efficiency is probably most certain when it is given in infusion.

Dr. Wilcox answers us that he has not found it so useful.

Dr. Forchheimer answers "Yes," and adds: "My views as to digitalis in children can be tersely expressed as follows: that it is well borne by them; that the dose, if anything, can be made larger in proportion than in the adult; and that it should *never* be given when compensation is not disturbed. In the disregard of the latter I have found the source

of conflicting statements regarding the utility of digitalis in children as well as in adults."

In answer to Question 2—If so, have you noticed that any particular variation in dose or in frequency of administration from that used in adults is necessary to produce good effects?—

Dr. Holt thinks the use should be rather smaller than of most drugs for the same age.

Dr. Griffith replies that he thinks that children bear it very well. He recommends the same proportionate dose at the same intervals.

Dr. Hollopeter says children will not tolerate digitalis long enough to accomplish any good from its use. He thinks the infusion the most desirable preparation.

Dr. Jacobi uses the infusion, fluid extract, solid extract, and digitalin.

Dr. Graham says: "Best given four times daily; have given it continually for weeks without noticing any ill effects. The same dose does not always produce the same result. I believe this to be due as much to variations in the strength of the drug as to personal idiosyncrasy."

Dr. J. Lewis Smith says: "I think not; similar ill effects may occur in children and in adults. The most common is nausea or a sensation of depression, which may be relieved by alcoholic stimulation or by camphor."

Dr. Wilcox thinks the dose should be smaller than that calculated from age.

Dr. Forchheimer answers, No.

In answer to Question 3—If not, what has been the apparent cause of its failure and what disagreeable symptoms has it caused?—

Dr. Holt has seen no disagreeable symptoms unless excessive doses were used for a prolonged period.

Dr. Griffith does not answer this question.

Dr. Hollopeter says it causes nausea and vomiting if continued for any length of time.

Dr. Graham says: "Digitalis fails to do good in cases of degeneration of heart muscle as in the infectious diseases, in irregularity of heart's action due to nervous excitement in early stage of acute endocarditis."

Dr. Wilcox says the cause is probably due to excessive vasoconstrictor action in children. Its use is limited to rapid irregular pulse and morbid mental nervous congestion irrespective of valvular lesion.

Dr. Forchheimer believes its failures to lie in "mistakes in accurate diagnosis."

To Question 4—What cardiac tonic or

stimulants have you found most useful in this class of cases in place of digitalis?—

Dr. Holt has usually combined strychnine with digitalis or used strychnine alone, but does not think it can replace digitalis.

Dr. Griffith has used digitalis chiefly and cannot compare with others, unless strychnine is included, which he has found extremely useful.

Dr. Hollopeter says: "Strychnine, which should be given in the same doses as in the adult (unfortunately the adult dose is only a child's dose), sparteine sulphate, and caffeine citrate." All of these are preferable in his opinion to digitalis.

Dr. Jacobi believes that tincture of strophanthus in the dose of six to twenty-five minims is useful.

Dr. Graham says: "Alcohol in degeneration of heart muscle and infectious diseases, opium and veratrum viride in early acute endocarditis, rest and bromide in nervous excitement."

Dr. J. Lewis Smith replies: I give nuxvomica guardedly and cautiously, or strychnine. I prefer, however, the following treatment for a child of eight years if digitalis fails:

Tincturæ ferri chloridi, f 3 ij;

Syrup ananassa sativa (pineapple), f 3 v.

One teaspoonful every three hours, alternating with:

Spt. æther nitrosi, f 3 ss;

Spt. Mindererus, f 3 iv.

One teaspoonful every three hours.

Dr. Wilcox answers strophanthus and to a less degree sparteine.

Dr. Forchheimer answers strophanthus and strychnine.

To Question 5—Has strophanthus done well in your hands in such patients?—

Dr. Holt thinks strophanthus decidedly inferior to digitalis.

Dr. Griffith has used it little or not at all.

Dr. Hollopeter used strophanthus for years only with disappointment. He has no faith in it.

Dr. Jacobi evidently, from what he says, places it next to digitalis.

Dr. Graham says: "It is a good drug to replace digitalis, but less efficient."

Dr. J. Lewis Smith says: "No, but perhaps a poor quality has been used."

Dr. Wilcox says "Yes."

Dr. Forchheimer has proved strophanthus to act well.

In connection with these reports it is interesting to note the opinion of a number of

well known authors on this subject. In many cases no definite comparative statement is made.

Carmichael says: "As to drugs, iron and digitalis take the first rank. My experience of strophanthus in children is very favorable; in many cases I prefer it to digitalis; it acts more rapidly and is not so liable to produce sickness, and has no cumulative effects." In regard to dilated heart Carmichael says: "Digitalis is also of much service, but probably in a less degree than strophanthus. I have had the best results from this remedy in such cases. It is a pure cardiac tonic, with little or no action on the blood-vessels, as is the case with digitalis. I am in the habit of giving it every eight hours in doses of five to ten drops, in children from six to ten years old."

On the other hand Donkin says, in speaking of acute cardiac disease: "I say nothing special of strophanthus and convallaria, which I seldom use now; for I have found the sickness which digitalis is often accused of causing very rare, if not mythical."

The conclusions then to be drawn from this collection of individual opinions seems to be in favor of digitalis as a cardiac tonic in the valvular cardiac diseases of children, although I still believe that its use should be cautious and that cases will be more frequently met with in which that drug will fail to act satisfactorily than in the adult.

#### *CHELIDONIUM MAJUS IN THE TREATMENT OF CANCER.\**

By C. D. SPIVAK, M.D.,

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In the *Vratch* of July 25, 1896, there appeared a communication from Dr. Denissenko, chief of the City Hospital of Bryansk, in which he made the statement that for some time past he has treated all cases of inoperable cancer with *Chelidonium majus*, and that he had obtained encouraging results. He described in detail the methods he used, and begged his colleagues to take up the subject and give the drug a thorough trial. The communication, which was written in an unassuming manner, bearing rather the form of a prayer to his brother practitioners to sustain him in his labors, and the fact that the article

was published in the *Vratch*, one of the best medical journals of the world, made his words carry with them the conviction that, at all events, the man is honest even if he errs, and that he by no means seeks notoriety. The news spread like wild-fire, and the medical press of the world gave the item more or less notice. It has even penetrated into the columns of the daily press. Since that time many prominent physicians and surgeons in Russia, Germany and France have experimented with the drug, and communicated their results in the various journals.

I have the honor to present to you a summary of the literature on the subject up to date.

A few words about the drug from a pharmaceutical standpoint. Its synonyms are: Chelidonium, Celandine; Herba Chelidonii, P. G.; Tetterwort, E.; Chélidoine, Herbe à l'hirondelle, Fr.; Schoellkraut, G.; Borodavnik, Chistotyel, Russ.

*Description.*—*Chelidonium majus*, Lin., Natural Order Papaveraceæ, is a perennial herb indigenous to Europe, and introduced on this continent. It grows about old houses, waste and rocky places. It is one or two feet high, bears pinnate leaves and small peduncled umbels of yellow flowers, and when wounded emits a yellow opaque juice of a milky consistence, unpleasant odor, and a pungent, acrid taste. It contains besides various extractives and tar-products, chelidonic and chelidoninic acids, two alkaline principles—chelidone and chelerythrine—and a neutral crystallizable principle, chelidoxanthine. Dr. James Schiels of St. Louis has found chelerythrine to be identical with sanguinarine. Selle (*Archiv der Pharmacie*, 1890) has found three other alkaloids, which he named respectively  $\alpha$ -Homochelidone,  $\beta$ -Homochelidone, and Protopine.

Tetterwort has been used in folk-medicine for centuries in the form of poultices, infusions, and as the juice. The medical men of some 150 years ago used it in various ailments—scrofulosis, syphilis, eye and skin diseases. It was considered a specific in jaundice and all liver troubles, and is known as *Decoctum ad ictericum* of the Edinburgh Pharmacopœia. The fresh juice is a popular remedy for warts and corns. It is also used as a remedy in phthisis.

*Physiological Action.*—Introduced hypodermically into a frog, it produces a semi-narcotic state, the reflexes are weakened, the peripheral sense-nerves are dulled, the irritability of the spinal nerves is lowered. Both

\* Read before the Denver and Arapahoe Medical Society, March 9, 1897.

the motor and inhibitory centres of the heart become paralyzed. The muscles show no change.

Introduced hypodermically into warm-blooded animals, it produces local irritation, and the temperature rises one or two degrees. Blood-tension is lowered by one-half. Respiration is markedly affected and becomes quicker and deeper. A lethal dose, producing paralysis of respiration, is 0.1 to 0.2 to the pound of body weight.

The microscopic examination of tissues into which chelidonium was introduced hypodermically revealed that the outlines of the individual epithelia become more distinct, the cells smaller, and the protoplasm cloudy.

An aqueous extract is used which should possess the following properties: homogeneous liquid, greenish-gray or greenish-brown color, of oily consistence, somewhat acid to taste, and possessing a pleasant odor.

Administered internally the dose is 1.5 in peppermint-water, to be increased to 5.0 in twenty-four hours. When administered externally the parts to be treated are covered with antiseptic gauze saturated in a solution of the extract of chelidonium and distilled water (2 to 1), to be applied once or twice daily. In hypodermic administrations equal parts of chelidonium and distilled water should be used, not more than 1.0 of the solution at a time, and not oftener than once a week.

Its effects are shown after five to seven days of internal medication, in the disappearance of the sallow hue of the skin; the appetite improves, pain is mitigated, the urine is increased in quantity. In from two to three weeks the tumor becomes softer and smooth and diminishes in size.

The external application, wherever the tumor is accessible to such treatment, hastens the process of recovery. It does not affect in any way the healthy tissue, and does not interfere with granulation.

The hypodermic medication was at first administered into the parenchyma of the new growth, but such procedure having in a few cases caused a severe reaction to follow—chill, rise of temperature, acceleration of pulse and fainting spells, which however passed away in from two to five hours—it was therefore abandoned, and the injections are made into the healthy tissue a short distance from the boundary of the neoplasm, which is not followed by any reaction at all. In a few days softening of the tumor sets in; in from fifteen to twenty days a line of

demarcation can be distinguished between the morbid and the healthy tissue; the one seems to be forced away from the other, and the whole tumor can sometimes be easily pressed out. In general, the tumor diminishes more than one-half in circumference, and the affected lymphatic glands of the neighborhood undergo involution.

The following cases have been described in literature:

Denissenko: I.—Forty-eight year old male; epithelioma of the lower lip; external application; hypodermic injections twice; cicatrization in forty days. II.—Tumor of lower lip, nature not known, probably epithelioma; hypodermic injection once, drug taken internally daily; cure in thirty days. III.—Fifty-three year old male; carcinoma of the bridge of the nose; four injections; daily applications; cicatrization in one month. IV and V.—Cancer of the esophagus; internal treatment for two months; recovery. VI.—Fifty-four year old male; cancer of the anterior wall of the stomach; internal treatment for ten weeks; no pain; increased in weight; returned to his vocation. VII.—Cancerous tumor on right side of neck; condition of patient pitiable; sick for one and a half years; internal and hypodermic treatment for two months; tumor decreased in size; general health greatly improved.

Zelenski: VIII.—Patient, male, eighty-five years old; for fifteen years suffered from a cancerous growth in left meatus of ear; two hypodermic injections were given, internal and external applications,—all at the same time; half an hour after, severe chills, vomiting, fainting, rise of temperature. Treatment abandoned.

Berezkin: IX.—Cancer of breast, internal; external and hypodermic treatment for two months; no improvement. X.—Cutaneous cancer on back for two years; treatment for one month; no improvement. XI.—Cancer of glands of neck; patient after first injection refused further treatment. XII.—Cancer of parotid gland; no improvement. XIII.—Cancer of tongue; two months' treatment; no improvement. XIV, XV, XVI, and XVII.—Cancer of uterus; no improvement. XVIII.—A case of warty growth; external application eighteen times; no improvement.

Pomerantzeo: XIX.—Cancer of breast; no improvement. XX.—Cancer of inner canthus of eye; no improvement. XXI.—Cancer of lower jaw; no improvement. Duration and mode of treatment in the above three cases not stated.

Kusmin: XXII and XXIII.—Cancer of esophagus. XXIV.—Cancer of stomach. XXV.—Recurrent cancer of breast. Duration and mode of treatment in these three cases not stated. No improvement. XXVI.—Serpiginous ulcer of forehead; cured.

Zarenin: XXVII and XXVIII.—Cancer of breast. XXIX and XXX.—Cancer of uterus. All four cases markedly improved; duration and mode of treatment not stated.

Vasilevski: XXXI to XXXVI.—Gynecological cases; nature of malady, duration and mode of treatment not stated; improved. XXXVII and XXXVIII.—Nature of cases, duration and mode of treatment not stated; not improved.

Fofius: XXXIX.—Cancer of labia majora; no improvement.

Kalabin: XL.—Cancer of uterus; duration and mode of treatment not stated; improvement.

Kelber: XLI.—Thirty-three years old; cancer of uterus, treated for six weeks; improvement. XLII.—Fifty years old; cancer of uterus, treated one month; no improvement. XLIII.—Twenty-seven years old; cancer of uterus, treated five weeks; no improvement. XLIV.—Cancer of uterus; marked improvement.

Denissenko: XLV to LI.—Cancer of breast; improvement. LII.—Cancer of uterus; improvement.

Robinson: LIII.—Fifty year old female; cancer of lower jaw; great improvement.

Poteyenko: LIV.—Forty-nine years old; cancer of uterus, treated sixteen days; no improvement.

Targowla: LV.—Forty-nine years old; cancer of uterus for three years; two months' treatment; great improvement. LVI.—Cancer of stomach; lady seventy years old; one month's treatment; great improvement.

Choladkowski: LVII.—Cancer of esophagus for nine months; could not pass smallest olive sound; internal treatment for two months; recovery as far as difficulty in swallowing and pain was concerned.

Dührsen: LVIII.—Cancer of uterus; no improvement.

Shirshov: LIX.—Cancer of uterus; treatment for six weeks; no improvement.

Spivak: LX.—Patient, male, fifty years old. Carcinoma of stomach; sick for ten months. Tumor occupied the whole anterior surface of stomach, extending below umbilicus. Greatly emaciated, no appetite, constant pain in abdomen, sleeplessness. Commenced treatment with ten drops of fluid extract of chelidonia.

which was soon increased to twenty-five drops three times daily. Stomach remained tolerant to the drug. The appetite markedly increased, the pains were allayed, and for hours patient would be free from them. This continued for eighteen days, when he became worse and died. LXI.—Male, forty-eight years old; carcinoma of the stomach, pyloric region. Patient sick for eight months. Cachexia, pain over site of tumor almost constant; appetite poor. Internal administration of chelidonium for three weeks. Showed signs of improvement. Appetite became better, color healthier, tumor did not increase in size and was somewhat softer to the touch.

#### SUMMARY OF CASES.

Out of the above sixty-one reported cases, thirty-three improved under chelidonium treatment, and twenty-seven showed no improvement, classified as follows:

Carcinoma of uterus (22 cases): Improved, 13; not improved, 9.

Carcinoma of esophagus (5 cases): Improved, 3; not improved, 2.

Carcinoma of breast (12 cases): Improved, 9; not improved, 3.

Carcinoma of stomach (6 cases): Improved, 4; not improved, 2.

There was one case of carcinoma of nose and one of carcinoma of glands of neck, both of which improved under treatment.

Two cases of carcinoma of lower jaw, of which one improved and in the other there was no improvement.

There was one case each of carcinoma of the eye, tongue, parotid gland, labia majora, ear, and back, in neither of which was there observed any improvement.

Two cases of epithelioma of lip; improvement observed in both.

One case of warty growths; no improvement.

One case of serpiginous ulcer; improved.

In two cases the nature of disease was unknown.

There were fourteen observers.

At the meetings of the various medical societies in Russia and Germany many discussions took place in reference to the action of the drug, and many cases were cited *pro* and *contra*, but as no detailed descriptions are given in the reports I did not include them in my paper.

The general sentiment, based upon the favorable cases reported by reputable physicians and the microscopic examinations of

cancerous tissue made after the injections, is (1) that the drug undoubtedly has some influence upon cancerous tissue which requires further investigation; (2) that the experiments are not numerous enough to warrant any definite conclusions; (3) that the drug being very unstable, many of the unfavorable cases may be attributed to the inefficiency of the preparation; and (4) that probably the technique of the administration is not yet perfected.

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DENVER, COLORADO.

**A REPORT OF FOUR CASES SIMULATING  
STONE IN THE KIDNEY FOR WHICH  
NEPHROTOMY WAS PERFORMED;  
NO STONE FOUND; OPERA-  
TION FOLLOWED BY  
DISAPPEARANCE  
OF ALL SYMP-  
TOMS.\***

BY ORVILLE HOWITZ, M.D.,

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In four cases in whom I performed the operation of nephrotomy for a condition that simulated stone in the kidney, a most careful exploration of the kidney by palpation and puncture by means of the needle was made, and in two of the cases incision into the organ itself, yet no stone was found. These patients have all recovered their normal condition and health, and the anomalous symptoms for which the operation was performed have all disappeared.

The first individual was operated upon one and a half years ago; he was twenty-eight years of age, a blacksmith by occupation. He always enjoyed good health up to within eight months prior to his first visit to the Jefferson Hospital, when he began to suffer from a dull aching pain in the lumbar region, paroxysmal in character. At times the pain would extend along the course of the ureter into the testicles; it was increased by exertion and pressure. Palpation proved the kidney to be in its proper position, normal in size, but there was tenderness on pressure.

The patient stated that he never had any venereal disease, and on examining the urethra and bladder they were found to be healthy. The urine was normal in quantity; it was high-colored, and the alkaline tide, which should appear about three hours after partaking of a meal, was absent; it contained two per cent. of urea, and its specific gravity was 10.18, with uric acid in excess and albumen. Under the microscope epithelial cells and a few blood-corpuscles were detected. No pus could be found.

When the pain extended into the testicle the patient often suffered from frequent desire to micturate. The pain had become so constant that he was unable to pursue his occupation. He had been under the care of numerous physicians without relief. From the history of the case and the examination of the urine it was presumed that he was suffering from a stone in the right kidney, and an exploratory operation was performed. No stone was found. The patient left the institution on the fourteenth day after the operation, the pain having completely disappeared. He states that he has been in perfect health ever since.

The second case was brought to me by Dr. Harris, of Wilmington, and was operated upon before the class in May last. At that time he gave the following history: He was forty-five years of age, a laborer by occupation; had enjoyed perfect health up to two years previous to his admission to the hospital, at which time he began to suffer from pain in the small of the back, on the left side, which would at times extend to the testicle. At first the pain was paroxysmal in character; it would be severe for several hours, then gradually subside and finally disappear; it would remain absent for two or three weeks, only to return with renewed force. As time went on the attacks became more frequent; the intervals between the remissions gradually shortened, until at the time of his admission it was almost constantly present. Sometimes the severe attacks of pain were associated with slight nausea. His urine at times was thick, especially after a severe paroxysmal pain. Had never passed a calculus, nor blood. Lately he had been losing in strength, and the pain prevented him following his occupation. Hitherto the numerous remedies prescribed failed to bring relief.

There was no venereal history. On examination the urethra, prostate and bladder were found to be normal; the left kidney was in its proper position, but sensitive to the touch.

\* Read before the Surgical Section of the College of Physicians of Philadelphia.



The specific gravity of the urine<sup>was</sup> 10.20; it contained two per cent. of urea and the phosphates were present in excess. The microscope showed the presence of epithelial cells, blood-corpuscles, but no pus.

The method of operation in this case was that recommended by Edebohls. The kidney was easily delivered, but great was the disappointment when no stone could be discovered, either by ocular inspection, manipulation, or multiple puncture with the needle. I was so confident that a stone was present that I was unwilling to restore the kidney to its normal position without a most thorough examination, knowing that a calculus of small size might easily escape the most careful search, unless indeed the kidney was opened. Accordingly an incision was made along the posterior border of the organ, large enough to admit of the entrance of the index finger and allow me to examine the calyces. No stone could be found. During the incision into the substance of the kidney an assistant grasped the pelvis, with the blood-vessels between his index finger and thumb, thus preventing the usual free bleeding which follows this procedure.

The wound in the kidney was packed with iodoform gauze, a drainage tube inserted, and the skin and muscles closed by means of interrupted silkworm-gut sutures. The patient made a quick and rapid recovery, and has had no reappearance of his troublesome symptoms since the operation. He is to-day in perfect health.

The third patient, whom I operated upon two years ago, was afflicted with a fistulous opening in the left lumbar region, which led to the kidney, through which all the urine eliminated by the organ on that side was discharged. The skin of the back was excoriated, consequent upon being constantly bathed in urine. He was much below par and was gradually losing health and strength.

Five years before coming under my care he was operated upon by the late Professor Agnew for a large perinephritic abscess with stone in the left kidney. To empty the abscess properly it became necessary to keep the drainage tube *in situ* for a long period, and its removal was followed by a fistulous opening which refused to heal. Every surgeon by whom he was seen since the operation advised nephrectomy. I suggested an exploratory operation in order to examine the local condition, and to save the kidney if possible. The patient consented; and the kidney was exposed in the usual manner. In

the body of the organ a fistulous opening was discovered large enough to admit the index finger, and a long tract was found extending down into the pelvis, being apparently the remains of the perinephritic abscess. The tract was scraped by a curette and the cicatricial tissue surrounding the sinus in the kidney was cut away by means of a small bistoury. The wound was packed with iodoform gauze and dressed in the usual manner. To my surprise it began gradually to granulate and closed entirely in about three months. It has remained so ever since.

For two years the patient had been suffering with all the symptoms of stone in the right kidney. As it is not very unusual for renal calculi to be found in both kidneys a second operation was advised, but such was the individual's dread of having a similar experience with his right to that which he had undergone with his left side that he refused all surgical interference. Medical treatment had been fairly tried, but brought no relief.

When his left side healed up his confidence was restored, and he permitted me to make an exploratory nephrotomy on the right kidney; the organ was exposed by the Edebohls method, and the kidney structure incised so that a digital examination could be thoroughly made, but no stone was found. On convalescing, the pain from which the patient had suffered had completely disappeared, and within a year he had gained forty-five pounds and enjoyed good health.

The last of this interesting group of cases was that of a young man kindly sent to me by Dr. Hirst, of Camden, upon whom I operated four months ago, no stone being found. His history is briefly as follows: He had never had any venereal disease, and was in perfect health up to two years before, when he began to suffer from attacks of pain in the right lumbar region. The pain would at times descend into the right groin and testicle; finally he suffered from a constant pain in the back, especially on the right side, which was increased on exertion. When the pain descended to the testicle that organ became markedly retracted, and there was attendant slight nausea. The urethra, bladder and prostate were in a normal condition; the urine contained epithelial cells, with a slight number of blood-corpuscles, and albumen. Since the operation he has gained in weight and his pain has completely disappeared.

The questions naturally asked when discussing these four cases, where every symp-

tom of stone existed except the voiding of renal calculi, and where no stone was found on exploring the kidney, are: What are the reasons for the patient's suffering? And why after recovery from the operation was there permanent and entire cessation of all the symptoms for which the operation was undertaken?

The only way in which I can answer these queries is to offer an explanation which has already been suggested. It has been surmised that probably the kidney on the side affected is somewhat more movable than it should be, yet to so slight an extent as to be impossible of detection by manipulation. By some means or other the kidney becomes slightly misplaced and thus temporarily the ureter becomes bent upon itself, blocking up and preventing the flow of urine; thus there is a distention of the pelvis of the kidney which probably gives rise to the pain. The frequent distention of the pelvis with urine owing to the blocking of the ureter might in time light up a slight pyelitis, which would likewise account for the presence of epithelial, blood- and pus-corpuscles in the urine. The operative procedure necessary to examine the kidney is followed by more or less adhesive inflammation and the formation of cicatricial tissue around the kidney, which tends to hold it in place and thus prevent any further kinking of the ureter.

Many operators have had an experience similar to mine, hence it should not be a subject of annoyance if the surgeon have a patient who presents all the symptoms of calculus in the kidney and when the operation of nephrotomy is performed no stone is found, for experience seems to show that even if the stone is absent the symptoms calling for the operation will all disappear, and the patient will be restored to health.

The method of operation first described by Edebohls is recommended, not only because it permits of a better ocular and manual examination of the kidney, but if it should be necessary to incise the organ it can be done without loss of any appreciable quantity of blood.

In conclusion I offer this suggestion: Never be satisfied that a stone is not present until you have had a chance to make an ocular inspection of the kidney. Very recently I assisted an operator in a case of this kind which has made a deep impression upon me. The patient had every symptom of stone in the kidney; nephrotomy was performed by means of the old oblique incision; multiple punc-

tures by a needle, were made; but no stone could be detected. The patient recovered from the operation and returned home. Six months later he again came under the surgeon's care, suffering from the same symptoms, but greatly intensified. The operator decided to expose the kidney once more, and endeavor to discover the cause of pain; failing to do this he had determined to remove the organ. The old wound was reopened, manipulation and puncture by means of a needle were again resorted to, but no calculus could be detected. The wound was enlarged and the kidney separated from the adhesions and made ready for ligation of the pedicle, preparatory to removal. On bringing the organ out of the wound and turning it over a small stone was found at the under and lower border of the kidney in its substance. This was removed, and the patient made an excellent recovery.

In a paper recently read before the Medical Society of London, by Mr. Reginald Harrison, he reports three cases of his own and two of Newman's, of Glasgow, whose symptoms were somewhat similar to those recounted in the preceding cases. In the first case the patient had suffered from an attack of scarlet fever three weeks previously. The symptoms were those of intense pain in the loin, the urine containing albumen and pus. Nephrotomy was performed and the kidney structure incised, and nothing found, the albumen gradually and completely disappearing. The second case was one of nephritis from exposure to cold and damp; there was great pain in the right lumbar region; urine loaded with albumen. An operation was followed by the disappearance of all morbid symptoms. In the third case the patient had passed a small calculus, and there was great pain in the region of the left kidney which, on palpation, was found to be swollen and tense. It was opened and explored; no stone could be discovered. The patient made a complete recovery and the albumen completely disappeared. Newman's two cases were those of movable kidneys with a kinking of the ureter, leading to hydronephrosis; there were albuminuria and tube-casts in the urine—all of which completely disappeared after nephrotomy.

The cases reported by Newman are similar to those recited by myself, whilst those that came under Mr. Harrison's care were a form of albuminuria due to kidney tension, and were relieved by renipuncture. In his paper on the subject Mr. Harrison calls attention

to the fact that where albuminuria is due to renal tension, though both kidneys be similarly involved, it is unnecessary to operate upon both organs as the sympathy which exists between the two glands is such as to cause an impression upon one to be reflected upon the other. Relief afforded to one kidney, as his cases would seem to illustrate, usually assists the other; whilst, as is well known, when the secretion on one side is suspended or arrested the opposite organ speedily takes up the whole of the work.

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*THE ADVANTAGES OF RESIDENCE BY  
THE SEASIDE.*

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BY WM. EDGAR DARNALL, M.D.,  
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Atlantic City has justly earned a world-wide reputation as a winter and summer health resort. Its autumn climate entitles it to perhaps as much if not more consideration as a resort for invalids during the fall months. The sanitation of this populous resort is always in a good condition, because under the careful supervision of an excellent Board of Health it is kept up to the standard throughout the year. The city is always clean, and strict vigilance is maintained day in and day out by the authorities. Such even pace is kept with the large crowds who frequent the place, that the day after they leave the city is as clean as it was before they came. The streets are constantly scraped, and all refuse is collected and carried off by garbage-carts as fast as it accumulates. Swill-barrels are emptied with regularity, daily trips are made the year through to the garbage depot, and everything collected by this systematic process is consumed by fire. The sewerage also represents the best system known to hygiene.

Every effort has been expended by the authorities to furnish the city an adequate and at the same time pure water-supply; they have succeeded admirably in this. Bad water is the bane of many resorts, but Atlantic City can boast of as pure water as may be found anywhere; this is obtained from springs and artesian wells. These latter are sunk from 750 feet to 1400 feet below the surface.

Geologically the island on which this city by the sea is built is composed of a superficial layer of sand some six hundred feet in thickness; underlying this is a stratum of clay,

which in turn lies upon a marl layer. This marl is peculiar in its formation, being composed almost entirely of a shell concrete. This stratum crops out in many places along the Atlantic coast, and is the same that forms the well known marl beds of North Carolina and Virginia. Underneath this shell-layer lies a bed of gravel; it is from this latter that the artesian supply is furnished, and these streams of pure and limpid water are beyond even a suspicion of pollution.

There are many things that go to make the autumn in most localities peculiarly a breeder of certain infectious diseases, such as diphtheria, malaria, typhoid and other fevers. In a large number of these cases the infection may be traced directly to the drinking water.

Nature has selected this season of the year to put off her garment of green and prepare herself for the ermine cloak of winter. Decaying vegetation is therefore abundant and provides an excellent medium for the growth and development of certain deleterious organisms. The heavy rains of this period, drenching the soil, easily bear these organisms to the water-supply unless great care is exercised. In addition to this, cooler nights with warm days effect a greater atmospheric precipitation, and the percentage of dew formation is increased. Bacteriological investigation teaches us that just this kind of fluctuation between the damp and the dry, with a sufficient degree of heat—and this is provided by the balmy days of this period—furnish the most propitious condition for the propagation of germ life. Thus we have in the autumn almost ideal surroundings for the growth of bacteria, and often an easy channel by means of surface drainage through which the water-supply becomes polluted.

The question may well be asked, then, Why is it that this city of 23,000 inhabitants, often accommodating 150,000 to 175,000 summer visitors at a time, is so free from infectious diseases of all kinds, and when sporadic cases do occur the infectious process is so easily stamped out, while in other places ruthless epidemics mow down their victims? This question is not difficult to answer when the facts are known. Two factors are especially important: (a) an abundance of sea air highly charged with ozone; (b) a porous, sandy soil, with scant vegetation.

As referred to above, the bacteria require for their propagation warmth, moisture, and a suitable pabulum. The decay of vegetable matter furnishes this pabulum; but as very little vegetation grows upon the sandy soil

of Atlantic City there is little decay, and the germ starves for want of the food necessary to its existence.

Again, whatever moisture the ground receives soon percolates through the sand, leaving the already enfeebled bacterium—struggling for existence and in want of water—high and dry and thirsty. An ocean breeze, highly ozonized, perhaps now sweeps down upon its defenseless condition. Oxygen and germ life are deadly enemies. The latter is too much weakened to resist; it quickly succumbs, and its innocuous life-history is ended. It is clear therefore that such climatic conditions as these do not present the most salubrious surroundings for the proliferation of these deleterious organisms.

Nature has supplied Atlantic City with her most potent antiseptic—plenty of pure ocean air; while the wisdom and artifice of man have given her the rest—pure water, excellent sewerage, and careful sanitation. This condition of natural antiseptis under which the people live, along with what hygiene has accomplished, makes the very climate to a great extent prophylactic against infectious diseases. Of course such diseases now and then crop out. Sporadic cases may occur anywhere; no place is entirely free from them. It frequently happens in these cases that the patient has been infected before leaving home, but the disease does not develop itself until he has been here for a few days. Epidemics, however, are entirely unheard of.

The practical immunity of this climate from malaria makes its autumnal period especially advantageous to that class of chronic cases whose susceptibility to paludism causes them to dread the periodical attack of malaria they are accustomed to have at this season. A short stay here frequently allows them to escape the attack altogether.

Much relief is also experienced by sufferers from autumnal catarrh, or hay fever. It is probable that the small amount of flowering vegetation, along with plenty of good wholesome air, are important factors in affording them relief from this distressing disease.

Nor can better tonic treatment be recommended to neurasthenics, anemics, and convalescents from surgical operations or exhausting zymotic diseases than a short stay at the seaside. The bracing air makes exercise a pleasure to the enfeebled and gives them energy; deeper breathing is encouraged; the appetite improves; the system is thoroughly invigorated. Roses soon tint the

blanched cheek of the invalid; new life infuses every vein; and the consciousness of returning strength inspires new hope and courage to the depressed.

In autumn the natural beauty of the scenery is enhanced. Autumn brings in its train beautiful balmy days with glorious sunsets. The sun sends down its rays in long, slanting pencils of light to the water, and the water spreads itself out in variegated, ever-changing tints of green, purple, pink, and amber. The temperature is delightful—neither too cool nor too warm. The dreamy period of Indian summer prolongs these delights far into winter, until it has robbed it of half its rigor.

The accommodations of elegantly equipped hotels surround hotel life with all that is desired by invalidism in the way of personal comfort. Perfect quiet and freedom from excitement may be obtained as easily as at home, for the tide of the summer's rush has ebbed, and the restless, eager sea of human faces has given place to quiet and calm.

Congenial surroundings and pleasant things for the mind to dwell upon are indispensable to the rapid upbuilding of the invalid. For this reason every practitioner recognizes the value of an occasional "change" of scenes and faces for his patient. It is a diversion for the mind. Just those moral surroundings so needful to the recuperation of convalescents are furnished by this climate.

After the rush of August a genial air of relaxation pervades everything. The pleasant temperature is grateful to the sick one. The water presents its fairest charms, bathing is good till October, and the peaceful, restful scenery affords food for healthy meditation. Returning strength begets new courage; returning health inspires new interest in life; and the patient, who perhaps has been brought low by disease, is restored to his friends a well man.

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*THE TECHNIQUE OF PROFESSOR KEEN'S  
SURGICAL CLINIC IN THE JEFFERSON  
MEDICAL COLLEGE HOSPITAL.*

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BY THOS. LEIDY RHODES, M.D.,

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[Continued from page 164.]

On arriving at the hospital the surgeon and assistants remove their coats and waistcoats in the surgeon's private room, roll up

their sleeves above the elbows, and put on freshly laundered white linen coats with short sleeves. The surgeon enters the clinic and scrubs his hands and forearms with pyoktanin-etheral soap, or with green soap, and a brush for at least five minutes. This primary cleansing is done before the students at each clinic as an object lesson to them. Having dried the hands, the nails, which are always kept reasonably short and evenly trimmed, are thoroughly cleansed with the ivory instrument made for this purpose, or with the blunt-pointed orangewood sticks with which the clinic is supplied. The hands and forearms are bathed in alcohol and finally scrubbed with a sterile brush in the bichloride of mercury solution 1:1000. The surgeon puts on a long rubber apron, and over this he wears the linen operating gown, the loose sleeves of which are drawn above the elbows and tied snugly with tapes.

The assistants, who have previously disinfected their hands in a similar way, in the meantime see to the immediate preparations for operation.

The assistant who will have charge of the instruments refers to a Keen "Instrument Blank," and selects from the instruments in the racks those necessary for the operation to be performed. These are wrapped in pieces of gauze to facilitate their handling and put into the Schimmelbusch sterilizer, where they are boiled thirty minutes, one per cent. of soda being added to the water to prevent their rusting. Paired instruments are separated before boiling; cutting instruments are separately enveloped in cotton to retain their sharp edge; needles are wrapped in a separate piece of gauze. Two all-metal hypodermic syringes are boiled at the same time, for the anesthetist's use. If the operation be on an extremity, the Esmarch apparatus is immersed in a five-per-cent. carbolic solution and remains in this solution until needed. The sterilized trays are placed in position on the glass tables for holding the instruments after they are boiled, and hot sterilized water is poured in the trays, which are covered over with towels.

The assistant in charge of the ligatures and sutures immerses the jars containing these in mercuric chloride solution 1:1000, removes the tops, and lifts from each with a sterilized tenaculum the necessary quantity of catgut (wound in rings) and drops it into sterilized bowls containing absolute alcohol. The ligatures are cut into twelve-inch lengths, the quantity being estimated for the kind of

operation to be performed. Spools of silk are likewise emptied from their separate tubes into sterilized bowls containing absolute alcohol; silkworm-gut and kangaroo tendon remain in their respective jars until needed.

The clinic nurse and her assistant, having disinfected their hands, cover the tables with sterilized sheets and arrange the jars on them properly and make up the different solutions.

At the beginning of the clinic the patients from the last clinic are brought in from the wards, on rolling beds, and brief remarks made upon the progress of each case; the wounds are dressed before the students so that they can note and keep in touch with the proper methods of dressing cases. The result of the pathologist's examination in the case is also read to the class, and while this is transpiring the chief clinical assistant inspects the preparations and sees that everything is in perfect readiness for operation.

The *anesthetic* is administered in a room apart from the clinic in order that the disturbance to the patient's nervous equilibrium, which would be brought about by bringing him while still conscious before a large body of students, may be avoided, and that he be spared the sight of the immediate preparations for operation and the necessary display of instruments. Occasionally the anesthetic is administered before the class for the purpose of instruction. The administration of the ether (which is commonly used for anesthesia) is not commenced until all the preparations in the clinic are nearly completed and the surgeon is ready to proceed with the operation; the practice of anesthetizing the patient before preparations for the operation are completed, and sustaining the anesthesia until the surgeon is ready to proceed, is discountenanced.

In order that the intervention of the operator will not be necessary during the process of anesthesia, should the patient show signs of failing heart or respiration, a skilled and trustworthy assistant is selected to give the anesthetic, who is competent to act in case of emergency. The anesthetist's whole attention is devoted to the administration of the drug, and he is not allowed to watch the operation.

For administering ether the form of inhaler devised by Dr. Allis is used on account of its simplicity, lightness, and efficiency. For chloroform the Esmarch inhaler is used, except as described below. The anesthetist uses a bottle graduated in centimeters and

having a Tweed dropper. Squibb's ether and chloroform are invariably used. The anesthetist is also supplied with mouth-gag and tongue forceps. An assistant has charge of the hypodermic syringe, which has been tested beforehand to see that it is in working order, and brandy and solutions of strychnine, atropine and digitalis are placed on a small table within reach.

Before exhibiting the anesthetic the anesthetist examines carefully the heart and lungs, loosens any constriction around the neck, chest or waist, and inspects the mouth to see that it contains no false teeth or other foreign body, as tobacco. The patient's statement is not accepted in this matter, but personal inspection is necessary, for it is quite common for patients to deny the presence of false teeth.

While heart disease is not considered a positive contraindication to the administration of an anesthetic, its presence makes the anesthetist more wary, and in valvular lesion the administration will be made with especial care. The heart-beat usually improves under the judicious administration of ether. It is true that anesthetics are highly dangerous in people with fatty hearts, but the shock of operation without anesthesia is equally or even more dangerous, and the surgeon has the choice of the lesser of two evils. The presence of extensive capillary bronchitis also offers a more or less serious drawback to administering the anesthetic, as the amount of mucus secreted may cause asphyxia, and the least amount of the anesthetic is given that is capable of producing the desired effect. In these cases chloroform is generally used by preference, and if care is taken in the administration there is seldom any serious result.

The urinary report is examined beforehand to ascertain the condition of the kidneys; the presence of albumen and casts in the urine, while not contraindicating operation, make the peril of anesthesia greater, and certain dangers are to be watched for and guarded against. But while in these pathological conditions of heart, lungs and kidneys there is more danger than where these complications do not exist, there is really no condition of these organs, as Hearn has clearly proved, that offers a positive contraindication to the use of an anesthetic in a case requiring surgical interference.

Inquiry is made as to the patient's habits, whether he be addicted to the use of alcohol or not. Alcoholic patients are peculiarly

liable to congestions, and pass through the exciting stage of anesthesia with considerable struggling. These cases are usually given a hypodermic injection of morphine a short time before leaving the ward to aid in bringing about insensibility with very little of the anesthetic.

Ether is the drug commonly used for anesthetizing in the clinic, as it is less dangerous in general cases, though it is not as agreeable to take and slower in action than chloroform. However, the sudden and alarming syncope which chloroform induces occasionally may come on so rapidly that it may prove fatal almost before an attempt can be made to revive the patient, and it is for this reason that it is not more generally employed. As Hare has shown by experiment, chloroform may kill by paralysis of the vasomotor and respiratory centres as well as of the heart, whereas ether acts fatally through the respiration alone, the heart rarely being affected. In case of alarming symptoms from ether there is usually sufficient time to undertake means of resuscitation which are likely to be of avail. Practically the only cases in which chloroform is selected are those in which there is profuse bronchial secretion or advanced kidney disease, and in operations on the mouth and nose, where it is administered on a pledget of cotton held in a forceps so as to interfere as little as possible with the movements of the operator.

Having ascertained the condition of his patient the anesthetist assures him there is no danger, and the patient being recumbent the dry inhaler is placed over his face, letting him take several respirations to gain confidence. He is instructed to take deep inspirations and not to expel the air too rapidly. This method of breathing allays to a certain extent the supersensitiveness of the bronchial mucous membrane, and the ether is received more kindly and is not apt to produce coughing. Only a few drops of ether are poured in the inhaler at first; this is repeated every few minutes, the anesthetist giving the patient time to become accustomed to the vapor and to acquire confidence, and encouraging him to take it quietly and not to be alarmed. A little patience exercised at the outset proves a saving of time and trouble in securing the desired effects, and the result is a much more satisfactory anesthesia, with less shock than where the ether is crowded and force is used to restrain the struggles of the patient.

As soon as the patient is fully under the

influence of the anesthetic he is wheeled on the rolling table, on which he was etherized, to the operating arena, where he is lifted to the operating table.

While the operation is in progress certain *complications* of the anesthetic state are liable to arise which must be met and treated the moment they occur. Of these, vomiting is the most common, and while it is disagreeable to the operator, particularly if he be operating about the face or performing a celiotomy—the vomitus being liable to infect the wound in the former case, and the rigid muscles from straining interfering in the latter—the danger lies in the fact that a part of the vomitus may pass the glottis and enter the trachea. The local anesthesia of the parts interferes with the usual guarding of the passageway to the lungs, and the patient may become asphyxiated from particles of food lodging in the trachea or bronchi. The necessary precaution is taken to guard against this occurrence by withholding food for at least five hours before operation. The anesthetist knows that his patient's stomach is empty, so has nothing to fear from this source, for should some of the vomited matter enter the patient's trachea, being nothing but a thin frothy mucus, it can do no damage to the mucous surface; the principal harm is that it interferes with the progress of the operation and causes much cardiac depression if long continued. Vomiting is usually due to incomplete anesthesia, the admixture of too much air with the vapor. The patient's head is lowered and extended and turned to one side, so the material may be drained off in a towel and the anesthetic persistently administered until vomiting ceases and complete relaxation occurs.

Bronchorrhea may be a distressing complication to the administration of the anesthetic, inasmuch as the free secretion in the bronchi and bronchioles may interfere with thoroughly anesthetizing the patient, and the patient is more prone to nausea from swallowing much of the mucus which is heavily soaked with ether. Bronchorrhea usually occurs during the earlier stages of anesthesia, and if judicious care is taken not to force the ether from the start the mucus secreted will usually not be of an amount sufficient to cause any distressing symptoms. When it occurs the patient's head is turned to the side and the mouth wiped frequently with a small gauze sponge in a sponge-holder to get rid of the accumulation.

Cyanosis in greater or less degree may

occur in the early stages of anesthesia, just before the stage of relaxation or later in the progress of the anesthetic. In the former case it usually occurs where bronchorrhea is profuse, and if the cyanosis be only slight the ether is continued until the patient is relaxed, and the bronchial secretion is drained off as rapidly as possible by wiping out the mouth frequently with a gauze sponge. If the cyanosis becomes marked, however, and the trained eye of the anesthetist recognizes an alarming condition, the ether is suspended and efforts made to revive the patient. During the progress of the anesthesia cyanosis may come on from closure of the epiglottis or "swallowing the tongue." When the condition becomes alarming the inhaler is removed, the patient's head is brought over the edge of the table and forcibly pressed backwards. This maneuver lifts the hyoid bone and with it the epiglottis. Cold water is at the same time dashed on the face with a towel. Should this not suffice the mouth-gag is fixed in position and the tongue pulled forward, rhythmical traction being made by means of a forceps with a prong on one blade which transfixes the tongue; this does far less injury to the tongue than forceps which act only by pressure. The throat is cleansed of mucus and the epiglottis lifted by pressing forward the base of the tongue with a blunt instrument or the finger. Artificial respiration by Sylvester's method is rarely necessary. Hypodermics of strychnine, atropine, digitalis or brandy may be necessary for a failing pulse or shallow respiration.

When it is deemed more advisable to use chloroform for anesthesia the Esmarch inhaler is generally used, but where operations on the mouth demand all available space and light after the patient is fully anesthetized, it is administered on a pledget of cotton clamped in a forceps. The cotton is held several inches above the mouth so that the chloroform vapor will be well mixed with air. The lips and nose are smeared with cosmoline to prevent blistering, and the utmost precaution is taken to anticipate syncope. Should this occur, means to counteract it are instantly taken. The chloroform is suspended, the head is lowered and thrown back, and the tongue drawn rhythmically forward, and if this does not suffice artificial respiration is practiced at once without waiting for the breathing to cease. An assistant gives a hypodermic injection of ammonia, followed by  $\frac{1}{16}$  of a grain of strychnine sulphate. The artificial respiration is kept

up for some time to urge the blood through the heart, and hypodermics of brandy and strychnine repeated at short intervals until improvement occurs. The writer has given thirteen hypodermic injections of strychnine of  $\frac{1}{10}$  of a grain each within two hours in such a case before the heart finally regained its accustomed beat. There were no ill after-effects from the cumulative action of the drug.

If necessary, faradism is used over the phrenic nerve (one pole over the epigastrium, the other over the course of the phrenic at the root of the neck) and mustard applied over the heart and cervical spine. Such procedures are rarely called for, however, if the drug be administered very slowly and plenty of air be mixed with the vapor. The writer has seen but two instances in which active measures were demanded to resuscitate the patient while chloroform was being administered, during a period of seven years in the Jefferson Clinic. Both of these recovered, the operation being temporarily suspended in each case. In one of the cases it was necessary to completely invert the patient, holding him up by the legs and compressing the abdomen rhythmically (which Hill has shown to be the best means of resuscitation) until the circulation was re-established and he showed signs of returning respiration. Such extreme procedures are fortunately, however, rarely demanded.

*The Operation.*—In the selection of a typical case for description of operative technique as practiced in the clinic we have a wide choice. The region of the neck, with the variety of tumors and cysts that are liable to be found here, is probably invaded as often as any other part of the body. Most of these growths are of glandular origin, and many of them are malignant, so the case before us, we will then suppose, is a lympho-sarcoma of the neck which has not yet assumed such proportions or invaded the tissues so extensively as to make operative measures unjustifiable.

The fully anesthetized patient, having been lifted to the operating table, is covered with warm woolen blankets, the edges being tucked under his back to reduce as far as possible the loss of body heat, and if necessary he is surrounded by hot-water bottles to supply by artificial means enough heat to make up the deficiency of the amount that may be lost. This will greatly lessen the subsequent shock which often follows a prolonged dissection. The temperature of the room is kept at a reasonably comfortable

mark, and drafts are avoided. To prevent his becoming chilled from the solutions these are always used quite warm and the table is placed in a slight Trendelenburg position, the foot being raised about three or four inches above the level of the head, so that all fluids run towards the head. This avoids wetting the blankets and other clothing and is insisted upon by Professor Keen in all operations on the head, neck and breast as a minor but important point in the technique.

The dressings are then removed and the face, neck, chest and arms to the elbows are scrubbed with soap and water, rinsed off with water and dried, and washed with alcohol. For this scrubbing a special brush reserved for the patient is used. A sterilized sheet is thrown over him, with the ends hanging over the sides and foot of the table, and fastened over his shoulders. The head is encircled with a sterilized towel, covering all the hair, and a sand pillow wrapped in a sterilized towel is placed under the shoulders to raise them and allow the head to drop backward. A sterilized towel is wrapped around the inhaler. The operative area is finally scrubbed with solution of bichloride of mercury 1:1000, care being taken that none enters the eyes or nasal and buccal cavities; and after plugging the external ears with sterilized cotton the part is ready for operation.

Notwithstanding these painstaking efforts at repeated cleansings, the staphylococci *epidermidis albi* are still found in the deeper layers of the cuticle, their accustomed habitat, but as they rarely show any tendency to pathogenesis and have never more than a local significance the rôle they play in the future proceedings is usually only one of slight importance.

The two immediate assistants, both of whom wear sterilized operating gowns so as to have perfect aseptic relations with the surroundings, take their proper positions at the table, the chief assistant to the operator's right, the second assistant opposite him. The assistant in charge of the instruments having removed them from the sterilizer and laid them in trays containing sterile water, selects a sharp scalpel and dissecting forceps, which he hands to the operator, and clamps a dozen or more hemostatic forceps to the sterilized sheet covering the patient, where they can easily be reached by the assistants. Fastening the forceps in this way to the sheet prevents their falling on the floor. A basin full of dry gauze sponges stands on a table within easy reach. The fourth assistant busies him-



self with the ligatures and sutures, cutting them into proper lengths, and threads the needles. Two nurses with aseptic hands look after the solutions, which they change frequently, and hand sponges, dressings, etc., when needed.

The patient's head is turned to one side and held firmly by the anesthetist, sterile gauze pads are pushed back of the neck on each side to absorb blood, and the operation is begun by making a free incision over the growth in the line of the sterno-cleido mastoid. After the platysma and fascia are divided the deep fascia is opened the whole length of the incision. The veins that are encountered in these superficial dissections are clamped and divided. The sterno-cleido will usually be found adherent to the growth and stretched over it. From now on the dissection will often be most difficult and tedious, and demands the exercise of the highest qualities of a capable surgeon. There is probably no other procedure in the category of surgical operations that is more difficult to perform, more serious in its demands, dealing with so infinite a variety of perverted relations. The growth is apt to be fixed on all sides by adhesions which are not readily separated, and the topography of the part is wholly altered.

When the anterior surface of the growth is reached, the next step is to attack at once the most dangerous region—the inner margin—where are found the vessels in the carotid sheath. This is accomplished principally with the Allis blunt dissector, which has justly been denominated one of the most useful of all surgical instruments. Two or three sharp curved retractors are used to great advantage to separate the tissues from the tumor, their location being changed frequently as the dissection continues, and the tumor also is pulled and rolled out by them, rather than seized by vulsellas, in the most advantageous way to aid in its extirpation. No tissue is cut or torn by the dissector until it has been carefully examined. One assistant sponges continually and is ready to make digital pressure should large vessels be wounded, while the other clamps the bleeding vessels as soon as they are cut. Hemorrhage is often serious owing to the numerous vessels which are large and thin-walled, especially if the tumor be of rapid growth. If these vessels are small and cannot be isolated from the tumor they are temporarily clamped and incised, but if they are of any material size a double ligature is at once thrown around them and the vessel cut be-

tween the two. The jugular itself may be so connected with the malignant growth that it will be impossible to isolate it, and it is accordingly divided between two ligatures, and no serious results follow the division. If it be wounded slightly a lateral ligature of fine silk mends the rent. The writer has seen the internal jugular unavoidably torn or cut on several occasions, and each time air entered the vein—in one of the cases air being sucked in five times—without the slightest untoward symptom. If this accident occurs the rent is instantly closed by the finger till the vein can be tied.

The growth may extend deep down into the tissues of the neck, and may have so insinuated itself among the various structures as to make this part of the operation most difficult and even desperate. The recurrent laryngeal presents a source of danger and, together with the phrenic, pneumogastric, sympathetic, and descendens noni, is to be avoided.

The dome of the pleura may be injured, and air be sucked into the pleural cavity. Should this occur the opening is at once clamped with forceps and closed with a running catgut suture, or is packed with iodoform gauze. A small amount of air in the pleural cavity will not be of any serious consequence and will soon be absorbed.

The posterior surface of the tumor is dissected loose and the mass rolled over by means of the sharp retractor, and the dissection continued until it is finally removed. Attention is now paid to the bleeding vessels. The smaller vessels are controlled by torsion, the larger ones ligated with strong catgut or fine silk, oozing from the tissues being controlled with successive gauze pads wrung out in hot water, and applied to the raw surface. Should bleeding points persist after the application of hot water they are controlled by additional catgut ligatures. Clots are removed by flushing with hot sterilized water or salt solution, and the wound dried with a gauze pad. Bichloride of mercury solution is not applied to the wound as it is irritating to the tissues, and when used upon albuminoids like blood forms chemical combinations which are not antiseptic, and which may account for untoward effects of disinfection in former years.

If drainage is required a fenestrated rubber drain is sewed in the lower angle of the wound, and the incision closed with interrupted silkworm-gut sutures passed with a curved needle, the suture at the upper end of

the wound being tied first; and as each successive one is tied an assistant makes pressure over the incision with a sponge to obliterate the wound cavity. No iodoform or other dusting powder is used. The anesthetic is stopped. An abundant gauze dressing is applied around the neck, over this a thick pad of sterile wood wool, and occasionally a piece of rubber dam on the outer surface of sufficient size to overlap the edges of the dressings. This is held in place with a wet gauze bandage, and a dry cotton bandage is applied over all, passing under the axilla, across the chest, around the head and over the back to hold not only the dressings but also the head in rather firm position. In place of wood wool the much cheaper pads made of the finest "excelsior" (the stringy wood shavings used for packing fragile articles) are sometimes used. The excelsior is made into pads of various sizes by means of gauze and then sterilized.

The patient is lifted back to the rolling table, warm blankets are wrapped around him, and the anesthetist accompanies him to the ward where his bed has been thoroughly warmed with hot-water bottles. He is placed in bed and hot-water bottles are disposed around him, care being taken that he will not be burned, and he is carefully watched until he is fully out of the anesthetic and intelligence is entirely restored.

In all operations the general technique is practically the same, additional features being used as demanded by each separate case. In operations about the nose and mouth, in many of which a preliminary tracheotomy is usually recommended, Professor Keen nearly always avoids this additional operation by placing the patient in the full Trendelenburg position, that is to say at an angle of thirty-five to forty degrees. Blood, like water, cannot run up-hill, and this position avoids the difficulties which often arise from blood half-choking the patient and also the later great danger of aspiration pneumonia. By turning the head to one side most of the blood runs out of the mouth and the rest is easily removed by gauze sponges in forceps. This posture is used in all cases of cleft palate, tumors of the tonsil, nose, or pharynx, removal of the tongue, cancer of the lip, hare-lip, removal of the upper or lower jaw, etc. When a celiotomy is performed for the extirpation of abdominal tumors and operations on the viscera, the moment the abdomen is opened the chemical antiseptic solutions are replaced by sterile salt solution.

To retain the intestines and keep them from encroaching upon the site of operation, Ashton's pads play a useful part. The required number of pads are kept in sterile water after they have been boiled, and a nurse has sole charge of these during operation. She prepares her hands and forearms by scrubbing with soap and water, rinsing with water and alcohol, and disinfects by the method employed by Kelly; the hands and forearms are immersed above the elbows in a saturated solution of potassium permanganate at a temperature of 110° F. until the skin is colored dusky-brown. This color is removed by a second immersion in a saturated solution of oxalic acid, at the same temperature, and rinsed in warm, sterile salt solution. She wrings out the pads in one pan of sterile water and transfers them to another until needed. The water in these pans is changed frequently by the nurse who attends to the solutions, the nurse having charge of the pads handling absolutely nothing but them alone. The number of pads used is not trusted to the memory but is written down on a blackboard, so there will be no controversy at the end of the operation whether any pads are missing, the number at hand corresponding to the number on the board.

Sterilized sheets cover the patient with the exception of the area disinfected for the operation, and towels are used sparingly as they have a tendency to become misplaced, especially if the patient struggles, not being fully under the influence of the anesthetic. As soon as the patient leaves the clinic the soiled sponges and dressings are removed, the floor is mopped with bichloride solution, the operating table is cleansed, and the soiled sheets on the tables are replaced by clean ones. Instruments and needles are gathered from the trays and scrubbed with soap under the hot-water tap; they are wrapped in gauze, the blades of the knives being enveloped in cotton, and resterilized by boiling while the next case is being anesthetized, additional instruments being added according to the requirements of the case. Fresh solutions are made up and the surgeon and assistants disinfect their hands and don clean operating gowns. In order to avoid the possibility of carrying infection to other cases, even with this careful technique, infected cases are always reserved for the last. The rule, "clean" cases first, "infected" cases last, is an invariable one.

The patient after operation usually makes an uninterrupted recovery. In very serious

cases, however, certain complications are liable to supervene, the management of which will be incorporated in a future article. I wish to thank Dr. Keen for permission to describe the technique which is so strictly carried out in the Jefferson Clinic.

1703 WALNUT STREET.

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*THE USE OF INTRAVENOUS SALINE INJECTIONS FOR THE PURPOSE OF WASHING THE BLOOD.\**

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I desire to call the attention of this Society to-night to the use of intravenous injections of saline fluid for the relief of threatened or present toxemia arising from renal disease, diabetes, or any acute infection, whether it be the specific micro-organisms which cause the eruptive or other fevers, or septic infection. My own experience is limited to its use in uremia and in toxemia associated with gangrene.

The use of intravenous injections for the relief of the collapse following severe hemorrhage or injuries is too well recognized as a valuable remedial measure to need any attention at this time. Surgeons resort to it or to hypodermoclysis, or the injection of saline fluid beneath the skin, quite frequently, and these means of resuscitation have practically displaced the obsolete practice of blood- or milk-transfusion. I believe that both plans are resorted to less frequently than is well, particularly the intravenous injections. The fear of an air embolus restrains some, I think needlessly, and the opening of a vein is as timorously performed now as it was boldly made sixty years ago.

The use of intravenous injections for the purpose of washing the blood is however an entirely different matter, one of very much more recent employment, and exceedingly popular with physicians on the European Continent, particularly in France. Within the last year almost every French journal has contained accounts of cases of toxemia treated with more or less success in this manner, and the results have certainly been such as to deserve wide trial and careful study. It is now a number of years since Stadelman proposed and used the intrave-

nous injection of carbonate of sodium for the relief of diabetic coma. This proposition, however, rested upon quite a different basis from that I am now discussing, namely, to antagonize chemically the acid which he believed to be in the blood as the cause of the diabetic coma. We now know that little if any permanent benefit results from such treatment, but that temporary improvement sometimes occurs. Thus Von Noorden speaks in glowing terms of one case of this character in which very good results ensued. Whether the good results which have been recorded were due to the chemical effect, or to washing the blood of impurities, is doubtful, but I am inclined to believe that the fluid entering the vein is responsible.

Before stating my own cases I shall take a few moments to cite illustrative cases from French and German sources:

Maygrier, apropos of a case of placenta prævia successfully treated by three intravenous injections (amounting to six liters) in one evening, says the reservoir of the solution is placed half a meter to a meter above the vein, and all air is carefully expelled from the tube and needle before the latter is introduced. Should the reservoir be lowered by mistake, blood may enter the cannula, clot there, and a clot be injected when the reservoir is raised. If any blood enter the cannula the instrument must be withdrawn and emptied, and the operation recommenced. The entrance of a small quantity of air does not matter.

Lejars exhibited a young man whose ruptured intestines he had sutured after peritonitis was fully established, and who recovered after receiving twenty-six liters of saline solution in intravenous injections; and gave details of three other remarkable cases of surgical infection cured in a similar way. He said that, always providing the kidneys are sound, such injections even in desperate cases have unhopd-for success, and should be generally adopted. Grave and threatening infection may be arrested or attenuated by one large injection, but it will generally be necessary to continue the lavage for some days, to use many liters of artificial serum, and to supplement the intravenous injections by hypodermic injections of moderate quantity every two hours.

Chasserany reported that he had found from experiment voluminous injections (intravenous, intraperitoneal, or subcutaneous) prevent the intoxication of rabbits by strychnine, provided they are made before the onset

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\* A paper read before the Philadelphia County Medical Society, March 24th, 1897.

of the nervous symptoms, but Delbet was not able to detect the alkaloid in the urine or saliva of dogs poisoned by strychnine, and in one case only of eight was the effect of the poison modified by the injections. A dog of forty-three kilos received three milligrammes of sulphate of strychnine; then, in eighty-five minutes, 910 milligrammes of the saline solution; all symptoms ceased and the animal recovered. In 105 minutes from the beginning of the injection the enormous quantity of 532 grammes of urine had been passed. The animal was killed some days later by the same dose of the poison in twenty-one minutes. Further experiments had proved that the injection of even large quantities of the saline solution did not cause trouble when the arterial pressure was normal, or even when it was artificially raised by atropine; this method may therefore be employed in certain pathological elevations of pressure—for example, eclampsia. Pressure lowered by copious hemorrhage is rapidly restored by the injection of even a less bulk than the blood lost, but not so rapidly by the hypodermic as by the intravenous method.

Tuffier has practiced intravenous injections, both for hemorrhage and for toxemia, in fifty cases, including two cases of tetanus (after preliminary bleeding), and found the first effect was to restore the normal arterial pressure and diminish the frequency of the heart's action; the second, to cause diuresis.

Proben, in a case of eclampsia, injected two quarts of the normal saline solution; the urine had been almost totally suppressed, with 100 per cent. of albumen, but within twenty-four hours the woman passed 109 ounces.

Berlin reported to the Société de Chirurgie the case of a woman who, three days after vaginal hysterectomy, showed such violent symptoms of sepsis that recovery seemed absolutely impossible. The belly was distended and painful, and there was very marked subnormal temperature and frequent vomiting. On the fourth day the patient seemed to be about dying, whereupon Berlin gave an intravenous injection of a little over a pint of artificial blood-serum, and shortly afterward repeated this injection, using not quite two pints. Marked cyanosis and increased gravity of symptoms followed at once, but shortly there was decided improvement and the patient recovered, being completely convalescent the twelfth day of her illness.

Segond stated that he had used injections

of artificial serum for four years in all major operations, and had been able to save many cases of severe hemorrhage by this means. He also stated that in cases of severe sepsis these injections were potent.

Monod had also had excellent results from intravenous injections.

Michaud (*Le Progrès Médical*, No. 2, 1896) gives fifteen cases in which this treatment was adopted, all in septic peritonitis following operation. Of these, five recovered. In one case, the patient being in imminent danger, 1000 grammes of artificial serum at 39° C. were injected, causing immediate rise of temperature of four degrees, and a slowing of the pulse. The serum was used during three days, at the end of which time the patient was out of danger, and recovered. A similar result was obtained after ablation of the Fallopian tubes, where several injections were used, together with irrigation of the peritoneum. The artificial serum of Hayem, or simply sterilized saline water, was used. Various accidents were noted—vomiting, pain in the side, plethora, and disturbance of the cerebral circulation. No later complications were observed. The method is excellent, but other means—drainage, irrigation, re-opening of the abdominal incision, and the free local application of ice—are to be used concurrently. Monod has had seven similar cases, with three recoveries. The effects were beneficial, even in the cases which ultimately terminated fatally.

In the *Journal des Practiciens* of January 23, 1897, Bovet and Huchard first review the literature as to the employment of subcutaneous injections for toxemia, and then report an interesting case of pyelonephritis occurring in a married woman who had been a sufferer for a long time from a mild albuminuria. The patient became seriously ill from general toxemia, fever developed, the urine became scanty and albuminous, the tongue was dry, and a large number of casts were found in the urine. The pulse rose to 130; respirations to 28. Under these circumstances it was considered wise to inject a considerable quantity of normal salt solution. The authors publish a table and a temperature chart showing the course of the case.

The treatment began on the 20th of April and ended on the 15th of October. During this time the patient received injections subcutaneously twenty-five times and by the rectum about twenty times. The quantities injected under the skin varied from three ounces to two quarts a day, and the urine

made corresponding increases with each large injection. The table which they give not only includes the quantity of the injections, the quantity of urine in twenty-four hours, the amount of salt given each day, but also the amount of albumen, pus, leucocytes and casts, and the general symptoms which the patient presented during the time she was under treatment. They also report a second case in less detail in which there was uremia with general anasarca. As a result of this treatment they believe that hypodermoclysis is an exceedingly valuable procedure.

Usually as the injection is given the patient at once shows signs of improvement, but in from two to thirty minutes he develops a severe rigor with strong, rapid pulse, followed in half an hour by great flushing of the skin and then a profuse sweat, with greatly increased urinary secretion. Sometimes quite a marked febrile movement takes place. Several hours after the patient reports himself as greatly improved.

My own cases were as follows:

A man of sixty-odd years developed acute toxemia with high fever and coma, owing to the sudden spreading up the leg of a gangrene of the toes. At first he could only be roused by speaking sharply to him; later he became still more comatose. His muscles became spastic. Twelve hours after the onset of the toxemia I injected about one quart of warm normal saline into a vein on his arm in the course of an hour. He developed a severe rigor, then broke out in a profuse sweat, and next morning, ten hours after, was perfectly conscious, said he felt first-rate, but later in the day became comatose again and died. He was doomed from the first because of his gangrene.

The second case is that of a man with chronic parenchymatous nephritis, who came into the hospital with twitching of his muscles, and semi-comatose. He had passed scarcely any water for several days. Had had constant headache for six months. Was markedly edematous from head to foot. He was too weak to be bled, or to be purged, or to receive pilocarpine, and seemed too ill for a sweat from a hot pack. I injected one quart of hot saline into a vein of his arm. He also had a mild rigor followed by a sweat, and in three hours thirteen ounces of urine were obtained from his bladder. The next day he said he had no headache, no dizziness, no pain anywhere, and felt no discomfort. His dropsy was not increased. Ten

days later, as his uremic condition seemed to be returning, I repeated this injection, with similar results.

The apparatus which I use is constructed as follows, and embodies all that is necessary for the treatment of these cases:

A glass container such as is used for irrigation purposes in antiseptic surgery is set in a frame in order that it may stand on a table rather than be hung against the wall. To the bottom of this container is attached four or five feet of red Para rubber hose, and in the end of this rubber hose is inserted a plain glass cannula; a clip is placed upon the hose in order that the flow may be controlled, and the cannula and tube which have been attached to the blood-vessel are joined to the tube running from the irrigator at the moment when they are both completely filled with liquid, so that no globule of air will be contained in the tube.

We may next consider the best fluid to use. The following letter by Edes in the *Boston Medical and Surgical Journal* of March 4, 1897, embodies my views exactly. I shall use the formula herein described hereafter, although in the cases just detailed I had to use ordinary saline solution instead. Edes tells us that:

"A modification of Ringer's fluid has been in constant use in the Massachusetts General Hospital for about two years. The formula is 0.1 gramme CaCl, 0.75 gramme KCl to 1000 Cc. normal salt solution. This fluid has been used chiefly for intravenous infusion, by means of a cannula, in quantities of 500 to 2000 Cc. Its use in the Massachusetts General Hospital started from a suggestion made to the writer in 1894 by Dr. William H. Howell, formerly Assistant Professor of Physiology in the Harvard Medical School, who was then repeating some experiments of Sydney Ringer. One set of these experiments showed that calcium salts are essential to the clotting of blood. Another set consisted in passing different fluids through an isolated heart (frog's), and observing the character of the beats and the length of time the beating was sustained by such fluid. Blood-serum sustains the beats well and for a long time. A solution of the albumens of the serum without salts does not sustain the beats well, nor does a simple normal salt solution. The addition of a calcium salt alone to the salt solution causes strong beats, which however are too prolonged, and therefore inefficient. The addition of a small amount of potassium chloride corrects the character of the beat,

and this combination, normal salt solution plus calcium plus potassium, will sustain heart beats as well and as long as blood-serum.

"The idea lay very near to supply such a fluid to the circulation in cases of extensive hemorrhage, in place of using simple salt solution, which, experimentally at least, does not sustain the heart so well. Ringer's fluid is 100 Cc. of a .75-per-cent. solution of sodium chloride saturated with calcium phosphate, adding 1 Cc. of a two-per-cent. solution of potassium chloride. This is not convenient for use in surgery, however, because the boiling necessary for sterilization precipitates a phosphate of calcium. This might possibly be evaded by sterilizing the ingredients, but in the Massachusetts General Hospital it was found more convenient to use the soluble chloride of calcium. The fluid can be made up in Florence flasks, which can be boiled and the fluid kept sterilized for accident work, and warmed for use by placing in a pail of hot water.

"The difficulty of comparing the action of Ringer's fluid with that of salt solution is extreme, as the cases where either is used show such tremendous variations in prognosis independent of any treatment.

"It seemed to the author when he first used the fluid intravenously in accident cases in the winter of 1894-95, that the effect was more permanent than that of salt solution. Two or three remarkable recoveries from hemorrhage and from shock have occurred with, and possibly because of, its use. It is possible that a modification like that of Dr. Locke, containing 0.3 gramme calcium chloride to the liter instead of 0.1 gramme, as used in the Massachusetts General Hospital, is more advantageous; and again it is possible that one percentage may prove better adapted for intravenous use and another for rectal. It is much to be desired that Ringer's fluid should receive an extensive trial, and if possible in such a way that its value compared to that of simple salt solution may be estimated."

I wish in conclusion to strongly urge the use of this method of treatment in the toxemias I have named. I am confident it is well worthy of wide application, and while not a serious operation it offers probably the only chance for a series of conditions almost always fatal. The recovery of a clear mind, the setting aside of oncoming coma, is only to be seen to have this method appreciated.

## AMYLACEOUS DYSPEPSIA IN NEURASTHENIA.

BY JAS. G. KIERNAN, M.D.,

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The nutritional element in neurasthenia seems, like that of insanity, to revert to the condition present in childhood. The insane, especially where insanity is an accidental factor in the life of the individual, preceded by states of exhaustion, not necessarily related to heredity, but very frequently the outcome of ordinary somatic disease, have a tendency to scorbutus and allied nutritional disturbances without adequate external exciting factors, as I pointed out nearly two decades ago.\* Underlying this condition are, of course, the disturbances of innervation of the salivary glands, of the gastro-intestinal system, of the liver, pancreas and kidneys, which interfere with proper digestion, assimilation and elimination, thus creating a series of interlacing vicious circles, either one of which has been regarded as the exciting factor of the whole constitutional disorder. From these results the displacement of intestines which were so frequently found in the insane by the older alienists, and of late by Glénard in neurasthenics, who charges these gastro-enteroptoses with being the cause of the neurasthenia. On the contrary, however, the stress to which the bowels and stomach had been exposed by the disturbances of innervation consequent on the nervous exhaustion which preceded acquired psychoses produced, as the older alienists recognized, these conditions. The insane are especially liable to gastro-intestinal disturbances resembling, as Griesinger long ago pointed out, those found in infancy. These, as in the child, are readily under the control of diet. By securing control of the diet formerly in the hands of the contractors I have been able to reduce the death-rate to one-fourth of what it usually was, and to one-tenth of that specifically due to diarrheal conditions.

The fact is generally forgotten that neurasthenia is, as a rule, an initial stage of almost all the acquired psychoses and of many neuroses. The so-called *paranoia acuta* of the Germans, the primary confusional insanity of Spitzka† and the French and American alienists, develops on nervous adynamia. It is a

\* *Journal of Nervous and Mental Disease*, 1878.

† *New York Medical Gazette*, 1880.

psychosis "which develops rapidly on a basis of cerebral exhaustion. Consciousness is blurred in parallelism with the conceptional disturbance, and the patients on recovering have as a rule but very crude recollections of their condition. Its duration is variable, comprising weeks or months. The prognosis is as a rule as good as that of stuporous insanity, which condition it also resembles as to etiology; emotional shock, cerebral overstrain, exhausting diseases and excesses being the principal factors responsible for primary confusional insanity. The patients suffering from the psychoses, after a rapid rise of their symptoms during a period of incubation rarely exceeding a few days, present hallucinations and delusions of a varied and contradictory character. The delusions may resemble those of mania and more often those of melancholia, but no emotional state is associated with them. The patients assert in the same breath that their property is being stolen and that they are going to take part in some state affair. There is a surface resemblance between the confusion of mania and that of acute confusional insanity. The confusion of mania is not the expression of a genuine confusional state, but of a disparity between the ideational items and the word-channels through which they seek exit. That of acute confusional insanity is an expression of a true essential confusion of ideation."

This adynamia is a peculiar condition of the entire organism, a nervous asthenia, most obviously improved and benefited by stimulants in the food sense. The nervous system is the first part visibly affected, the heart the second; the contractile power fails, not from want of blood as in anemia, but more from shock or some toxic influence. The capillary activity seems impaired, the metabolism and nutrition thereby diminished; the contractile power of the heart and the blood-pressure being much decreased. This condition appears in acute and chronic forms of disease alike, partly as the main lesion, partly as a complication. Adynamia may cause many various disorders where foods have a distinctly beneficial action—headache, neuralgia, dyspnea, syncope, spasms, paralyses, etc. Individual causes may have a depressing influence on the general system, from emotion, as intense grief, joy, terror, shock, lightning, electricity, overwork, excessive intellectual toil, domination of violent passions, protracted anxiety and distress of mind, exhausting and prolonged diseases, foul air, etc.

This adynamia may proceed into neurasthenia, localized in the spinal cord and affecting spinal territories in such a way as to simulate organic disease, or it may take a similar course in regard to cerebral territories, or it may assume the type so generally recognized as neurasthenia with its morbid fears, its alternation between emotional depression or exaltation, its helmet sensation, its insomnia, its vertigo, or its disturbances of orientation. Neurasthenia is preceded by states which interfere with proper secretion in the glands concerned in digestion, and noticeably with those concerned in digestion of starch, whose secretions are altered in quantity, quality, or both. Recognition of the necessity for dietary regulation is general, but the method of regulation is very contradictory. As the evil influence of uric acid leucomaines is generally recognized, the supply of animal nitrogenized food is usually limited, and on the other hand the supply of starch and sugar, as well as the vegetable proteids, is increased. The principle here recognized is from a chemical standpoint seemingly correct, but from a biochemical decidedly erroneous. The interference with the starch-digestion glands already indicated has left a deficiency in the organism which will aggravate the existing condition if the excess of starch be given. Through this error often occur the distressing phenomena resultant on fermentation which so frequently annoy neurasthenics and underlie the creation of morbid fears. If the indication be clear that a proper supply of starchy food be needed to break up that monotony in diet which plays such a large part in metabolic disturbance, then as the absorptive powers are all right the digestive factor should be assisted. These two conditions are recognized, but although the proteid is cut down, it is assumed of necessity that indigestion exists only as to it; and therefore pepsin is given, albeit starchy material is poured in in greater quantities than in health. The fact is that while starch undoubtedly is indicated in neurasthenia, power of its digestion is interfered with, and requires assistance. In these cases a remedy seems needed whose quantity will be minute and which will act rapidly. The agent that I have found excellently adapted in most cases has been Taka-Diastase. This has no contraindication from the bulk of dose, is readily given with meals, and in the quantities needed is exceedingly economical. It tends to diminish retrograde metamorphoses in the intestine and hence destroy the undue accu-

mulation of gas which is so unpleasant and distressing to the patient, in both its subjective and objective aspects. One great recuperative factor in the treatment of neurasthenia is diet, and one great difficulty in the way of proper diet is constituted by the mental and physical effects resultant on monotony. The elements in diet which would prevent this monotony are such as are logically contraindicated because of the interference with their digestion by the digestion innervation disturbances consequent on the disease.

As a rule these disturbances largely involve amylaceous digestion and hence require agents like Taka-Diastase for their assistance. This agent, while of no value in the treatment of nervous exhaustion considered as a neurosis, is of very great service in securing the proper dietary care of these patients, which plays such an enormous part in the recuperation of their nervous systems.

#### VENESECTION.

KRÖNIG (*Berliner Klinische Wochenschrift*, Oct. 19, 1896) begins a study of this subject. He refers to the authorities who have recently advocated venesection in certain cases, and first discusses its use in acute pneumonia. The effect of edema of the lung, or a very massive exudation compressing the capillaries, is such as to cause an insufficient exchange of gases, thence a CO<sub>2</sub> intoxication. With this is associated a mechanical difficulty. For a time the reserve force of the right ventricle can overcome these difficulties, but when exhaustion sets in there is dilatation, and then commences the danger to the patient. The blood is driven into the left auricle with difficulty, and the heart muscle is insufficiently nourished. The pressure in the pulmonary circulation increases, and that in the aorta diminishes. To overcome these dangers recourse is had to two expedients, namely, (1) to increase the power of the right ventricle by stimulants and cardiac tonics; and (2) if this does not succeed, to reduce the mass of the blood by venesection. Often venesection then produces a diminution of the cyanosis and of the dyspnea, and the pulse gains in strength. The author believes that the best time for venesection is near the time of the crisis. It should be repeated if necessary. He refers to three apparently hopeless cases in which venesection was followed by recovery. Again, in non-febrile affections of the heart and lungs the pul-

monary circulation may become overloaded. Here venesection may give even better results than in acute pneumonia. Occasionally in heart disease sudden exhaustion may occur in a heart hitherto acting relatively well. Cyanosis, smallness of the pulse, intermitting respiration, may lead quickly to death. By a venesection the right heart is relieved. The author refers to two such cases. One occurred in a man aged fifty-eight, who was seized with sudden and most severe dyspnea. After bleeding to 200 cubic centimeters the cyanosis rapidly disappeared. In the other case a girl aged sixteen, with heart disease, was suddenly seized with great cyanosis. The radial pulse could not be felt, and there was Cheyne-Stokes breathing; 380 cubic centimeters of blood was withdrawn, camphor injections given, and artificial respiration practiced. On the following morning there was no trace of the severe symptoms of the day before. There is a group of cases in which the cardiac tonics do not act satisfactorily. The author refers to one case in which the patient appeared almost moribund. Digitalis failed to relieve him until venesection had been performed, when it yielded the best results, and the patient lived for two years.—*British Medical Journal*, Nov. 28, 1896.

#### THE ACTION OF SULPHATE OF QUININE AS AN OXYTOMIC.

SCHWAB in the *Journal de Médecine de Paris* of November 29, 1896, points out the value of quinine as an oxytomic, thereby emphasizing a fact already well known to American practitioners. He believes that it is of great value in ordinary uterine inertia and in all cases where we have reason to believe that the uterine contractions are or will be feeble. He cites a number of cases in which the administration of full doses of quinine under these circumstances produced the most happy results, and he notes a number of French authors whose experience has agreed with his own. In the discussion which followed his paper the question arose as to whether quinine administered to pregnant women was capable of producing abortion. That this danger exists seems, however, to be largely imaginary, and the drug can be given whenever indicated in moderate doses to pregnant women prior to full term with perfect safety. This result is also in accordance with what we believe to be the general conclusion of American practitioners.



# The Therapeutic Gazette

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## Leading Articles.

### QUININE IN MALARIAL HEMATURIA.

There is still great difference of opinion between physicians of wide experience as to the value of quinine during an attack of malarial hematuria, it being held by some that it is almost a specific, while others are equally positive that it is contraindicated by this condition. In this connection it is interesting to notice a report made by Robertis, an Italian investigator, an abstract of whose paper was published in the *Deutsche Medizinische Zeitung* of June 15, 1896.

This clinician relates the case of a patient who, after having suffered from two paroxysms of malarial fever, received twenty-five grains of quinine in the course of a few hours, the quinine being given for the purpose of preventing another attack. A few hours after the last of the quinine had been taken he had a severe chill followed by fever, cyanosis, and headache, and the urine became bloody. This was followed in the course of twenty-four hours by jaundice and swelling of the liver. Two days after these symptoms the patient, being entirely free from fever and thinking

himself about well, took twelve grains of quinine in three doses, when he suffered from another chill and its consequent symptoms, the urine also becoming bloody.

This case is of considerable interest because it is practically identical with a number of other cases which have been reported in American and foreign literature, particularly by Greek and French writers.

In a collective investigation upon quinine in malarial hematuria, published in the GAZETTE in 1892, the writer of this editorial quoted from the opinions of a number of practitioners. Karamitsas of Athens, in the *Bulletin Général de Thérapeutique*, reported seven cases of hematuria due to quinine, one of them being in a child and the others in men, and curiously enough six of the individuals were medical men. In all these cases he was able to produce hematuria at will by the administration of quinine, and further he found that they passed through the malarial paroxysm without hematuria if quinine was withheld, but developed hematuria if this drug was given. Tommasselli has also seen similar cases, as has also Carreau. Finally Pampoukis and Chomatianos of Athens have reported cases in which quinine caused hemaglobinuria, the salt most frequently producing this symptom being the sulphate.

The conclusions reached in the collective investigation which we have quoted and which it may be permissible for us to mention, considering the fact that they were published some years ago, were that quinine should not be employed in the milder forms of malarial hematuria nor in those cases in which idiosyncrasies to its action exist. On the other hand, in those cases which are malignant in their manifestations in other lines than the mere hematuria and dependent upon a malarial paroxysm superimposed upon a malarial idiosyncrasy, then quinine is needed. In that form of hematuria following prolonged or subacute malarial poisoning, quinine is not to be given in full doses but only as a tonic. The general trend of the information gained in this collective investigation is rather against than for the administration of quinine to combat this condition, for its use in full doses in the presence of hematuria is equivalent to locking the door after the horse is stolen. Hematuria may be considered the result of a malarial paroxysm, and the use of quinine after this symptom has developed is equivalent to its employment after the harm has been done.

### THE DIET OF TYPHOID-FEVER PATIENTS.

The question as to the proper diet for patients suffering from enteric fever is one that has been considered settled by the medical profession in general, and it seems to be the almost universal opinion to-day that coincident with the diagnosis or suspicion of typhoid fever we should exclude all solid articles from the patient's diet list, insist that he shall partake of liquid foods only, and rely chiefly if not entirely upon milk.

Against this pure milk diet there are of course four objections which can always be urged with considerable force: First, a diet limited to any one variety of food is not, as a rule, particularly advantageous but rather disadvantageous to the individual both in health and disease; second, milk disagrees even in health with a considerable proportion of otherwise healthy patients; third, the patient is required to take a large amount of liquid in proportion to the nourishment which he obtains, which perhaps is not so great a disadvantage in that it tends to flush the kidneys; fourth, milk very frequently produces, as is well known, a large amount of gas in the bowel, and should constipation be present as a symptom of typhoid—and it certainly is frequently present notwithstanding classical descriptions to the contrary—this diet will increase both the tympanites and the confinement of the bowels. We confess that it is our custom to resort to a rigid milk diet in all such cases, but our attention has nevertheless been called to and interested in an article by Dr. A. G. Barrs, Professor of Therapeutics in the Yorkshire College of the Victoria University in England, which he has contributed to *The British Medical Journal* of January 16, 1897.

In this article Dr. Barrs inveighs against the insistence upon a rigid milk diet and advocates the administration of solid food both during the acute stage of the disease and during convalescence. He asserts, somewhat dogmatically perhaps, that there is no good evidence that solid food is always contraindicated; but at the same time he points out that, in his opinion, our guide in the administration of food to patients suffering with this disease is, to a certain extent, the desire of the patient, provided his mind is clear and he seems qualified to make a sensible statement of his needs.

In Dr. Barrs' experience a patient unable to digest meat and other materials of a simi-

lar character, during the early stages of typhoid, is usually too sick to ask for or even to desire solid food, and he does not believe that a person with a dry and sordid-covered mouth and parched tongue and all the evidences of marked asthenia would have any desire for, but rather an abhorrence of, eatables in general. In other words, Dr. Barrs says that "whenever a typhoid-fever patient can eat meat and enjoy it" he is never in much doubt as to his recovery, and he does not think that solid food, provided it is not so solid as to be indigestible, in any way increases the danger of hemorrhage or perforation in typhoid fever. But he evidently believes that the diet, like the treatment, should vary with the symptoms of the patient and not be resorted to in a purely routine manner.\* His chief object in urging this method is that during the course of typhoid fever the patient needs all the concentrated nutriment that he can obtain, and that a semi-solid or solid diet aids him in its acquirement. On the other hand, it is well for us to remember that in typhoid fever the digestive juices of the entire alimentary canal are so altered in their constitution that under many conditions it is doubtful whether solid food could be digested. It is a fact well known to physiologists that fever arrests the secretion of normal gastric juice, and as this is the case, surely the digestion of meat, even if it was finely chopped up as suggested by Dr. Barrs, could not be carried out.

### THE ABSORPTION OF DRUGS.

One of the most important factors in successful medication is the administration of drugs which are easily dissolved in the stomach or intestine and afterwards easily absorbed. In many pressing cases time will be lost if insoluble substances or drugs that are slowly absorbed by the gastric mucosa are administered in place of those which can rapidly enter the blood-stream, and in many instances physicians are prevented from administering remedies which are otherwise indicated because these remedies lend themselves so slowly to the process of absorption. Probably with greater frequency the physician is brought face to face with the fact that while the drug is soluble and easily absorbed under usual circumstances, in this particular instance the stomach of the patient is in such an abnormal condition that it is incapable of carrying out its physiological

function, and that remedies which are placed in this viscus remain unabsorbed and, in consequence do not produce any effect, at least for many hours. Quite frequently we believe that the excessive effects which sometimes follow the repeated administration of remedies depend for their existence upon the fact that the inactivity of the stomach has not been recognized, and that repeated doses have been given until after a number of hours the stomach returns to its wonted activity and the total amount of medicine administered over a considerable period of time enters the blood-stream in one mass. It is quite in the power of the physician, however, in many cases, if he is skilful enough to recognize the fact that the stomach is inactive, to stimulate it to the performance of its proper functions by combining with the drug which he most desires to administer another remedy which by reason of its stimulating influence will cause the stomach to produce its normal secretion and carry on absorption. We refer particularly to the administration with ordinary drugs of such substances as capsicum or its oleo-resin, or mustard and ipecac, all of which act as powerful stimulants to the gastric mucous membrane. Or if it is thought that the stomach is in a condition of nervous excitation and yet incapable of absorption, we would suggest the administration of chloroform water or spirit of camphor. By the combination of these remedies with such a drug as digitalis, for example, we quickly obtain the influence of a cardiac tonic through the aid of the gastric stimulation.

#### LIMITATIONS OF EXTIRPATION OF THE KIDNEY.

With a more detailed knowledge of kidney affections, with improved technique, and, at least in so far as the reported cases are concerned, with lessened mortality for total excision, the operation of nephrectomy for various pathological conditions of the kidney is becoming very much more popular. This operation is based upon a belief that one kidney can be removed without seriously affecting the health of the other, the remaining one serving to eliminate a sufficient quantity of urine.

In this relation a recent communication from Wagner (*Centralblatt für die Krankheiten der Harn- und Sexual-Organen*, bd. viii, heft 2, 1897) is particularly important. It has been clearly shown that in case of congenital atrophy of a single kidney the remaining

organ undergoes a process of overgrowth enabling it to take the place of the absent organ. Although it has often been asserted that this also occurs when the organ is extirpated after partial or complete systemic development, there are now a sufficient number of cases which have been subjected to careful examination to prove that such a rule is subject to many exceptions, and that the remaining kidney is sometimes unable to take upon itself the functions of both.

Such a post-operative insufficiency often develops when least expected—that is, when there is every clinical evidence to show that the remaining organ is healthy. The true basis of this insufficiency seems to depend upon a bilateral crippling. It has been proven that long continued suppuration of one kidney, whether it be due to calculi or to other exciting causes, often leads to an undemonstrable chronic parenchymatous and amyloid degeneration of the other kidney, and hence to a suddenly developed insufficiency when the obviously diseased organ is removed.

Israel has also shown that even though the remaining organ be healthy, following operation, an ascending infection from the bladder is prone to develop.

In other cases although the remaining kidney is healthy there develops in it, following unilateral nephrectomy, a coagulation necrosis which destroys the secreting epithelium and shortly leads to insufficiency and death. The cause of this parenchymatous nephritis is said to depend upon the influence of narcotics and antiseptics, especially chloroform, carbolic acid and iodoform.

Exceptionally following nephrectomy fatal anuria develops, although macroscopic and microscopic examination of the remaining kidney show no pathological alterations. The inhibition of secretion is in this case probably reflex and of a similar nature to the anuria which develops in consequence of unilateral ureteral obstruction by a stone.

It is also obvious that in case of unilateral absence or shrinkage of the kidney removal of a single secreting organ would be followed by anuria. The possibility of such a congenital deformity must always be considered before deciding upon extirpation of the kidney. Morris found from a study of over 20,000 autopsies that this congenital malformation occurred once in 318 sections. Ballowitz has collected 213 cases of single kidney and finds that in man the left kidney is generally absent; in woman the anomaly is equally fre-

quent on both sides. It is about twice as frequent in men as in women.

The possibility of fusion of the kidney must also be considered, since operation under such circumstances is necessarily fatal unless the condition is recognized.

Socin and König have, however, operated on a horseshoe kidney, dividing the band of connection without serious hemorrhage and removing the diseased portion. Braun under similar circumstances was deterred from completing his operation by uncontrollable venous hemorrhage which was followed by death.

Practically the only method of recognizing abnormalities of formation or position of kidneys is by exploratory incision. All other diagnostic means are unsatisfactory. Even cystoscopy and catheterization of the ureters may fail. This is especially the case in horseshoe kidney, since usually there are two ureters opening into the bladder in the normal position. In other cases of fusion double ureters are frequently observed. Indeed the ureters may be multiple.

Congenital absence of one kidney is commonly accompanied by absence of the ureter and of the corresponding portion of the vesical triangle, although this rule may have many exceptions. In women congenital absence of one kidney is often shown by unilateral abnormalities in development of the sexual system.

In addition to the dangers already mentioned which are attendant upon nephrectomy, it cannot be denied that when the organ is deeply placed and adherent to surrounding parts its removal is one of the most difficult and dangerous procedures known to modern surgery.

In the operations undertaken for the removal of malignant growth or tuberculous infiltration, cases should not be counted successful simply because the patient recovers from surgical interference. Even with a perfectly healthy, properly compensating kidney such a patient is more vulnerable than one provided with two kidneys. Autopsies have shown that more than one-half the cases of congenital absence of the kidney showed some disease of this organ, and the majority died because of such disease. Such kidneys are particularly subject to stone. The single kidney remaining after nephrectomy is even more vulnerable.

Schramm has reported a case in which he removed the kidney of a 25-year-old woman because of hydronephrosis. Four years later

she became pregnant and up to the fifth month suffered from polyuria and albuminuria, and later there developed an irregular heart action. This patient recovered, although she was slow in convalescing. The author concludes that under such circumstances—*i.e.*, when one kidney has been removed—future conception should be prevented.

It is evident from what has preceded that a kidney which is functionally sound should never be sacrificed; the diseased kidney should only be removed when the nature of the disease and its extension are threatening. Kidney diseases which more conservative methods may cure, even though these require a long period of time, should not be subject to nephrectomy, since even a very small portion of secreting substance may be a vital necessity to the system.

In the vast majority of kidney diseases nephrectomy can advantageously be substituted by nephrorrhaphy, nephrotomy, partial resection, resection of the ureters, implantation of the ureters, or other procedure. Nephrorrhaphy is the operation for wandering or displaced kidney. Nephrolithotomy should be employed in all cases of stone when the latter has not led to profuse suppuration and extensive destruction of kidney substance. Nephrotomy is sufficient in the majority of cases of kidney suppuration and of hydro- and pyonephrosis; also for the relief of solitary cysts of the kidney or of echinococci. Partial extirpation is indicated in the rare cases of non-malignant tumor, of suppuration, concrement or cyst formation. In the case of fistula, if the kidney is sound resection should be replaced by a plastic operation upon the ureter.

Nephrectomy may be primary or secondary. Primary nephrectomy is indicated in cases of malignant growth, either from the kidney itself or its capsule. The mortality in eight years has been extraordinarily diminished, probably because of increased skill in diagnosis and improved technique, though it is rare the true nature of the affection is detected early. Exceptionally hematuria and pain will justify an exploratory operation through a unilateral or bilateral lumbar incision. Under such circumstances nephrectomy promises well. Very exceptionally repeated examinations of the urine show fragments of a tumor.

Palpation of the kidney, if carefully conducted, sometimes will enable the surgeon to make an early diagnosis. Israel showed this in four cases, the accuracy of his diagnosis

having been confirmed by operation. At the present time a tumor growing over the upper segment is practically inaccessible, and Rovsing states this is the region of the greater number of these tumors. Seventeen cases were collected by Wagner in 1893 in which the patients lived from one to six years without recurrence. Those who remained free from recurrence for two years may be regarded as cured, since later rescidivity is unusual. There are exceptions to this rule, as in the case contributed by Rovsing in which there was recurrence after three years.

An examination of over a hundred cases of nephrectomy for malignant growth shows that in the great majority of cases there is recurrence or metastasis within six months; that these accidents are progressively less frequent with the lapse of time, and with few exceptions are not observed at all after two years. As to the direct results of operation for malignant growth of the kidney, the mortality has been diminished from 61.22 to 24.40 per cent.

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## Reports on Therapeutic Progress

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### *THE THERAPY OF DIPHTHERIA OF THE CONJUNCTIVA AND TETANY.*

The serum or antitoxin treatment of pharyngeal and laryngeal diphtheria has taken an unassailable place in the therapeutics of this disease, and we now look for reports of its utility in the treatment of diphtheria manifesting itself by the deposition of membranous formations in other parts of the body, such as the conjunctiva. Very recently some statements worthy of note have been made anent such conditions by GREEF. He treated after this method fifty-two cases of genuine conjunctival diphtheria, with the very gratifying result of seeing thirty-seven of these cases recover. In only two did death result. This is a percentage that has scarcely been equaled. Naturally in conjunctival pseudo-diphtheria the serum treatment is of no use, but it is a matter of importance to bear in mind that the author avers that such treatment does no harm, particularly when we recall that Guttmann claimed that a greater proportion of cases of diphtheria were followed by polyneuritis when subjected to antitoxin treatment than when treated in other ways. Greef was unable to draw any conclusions as to the effect of the serum treatment on the course of the paralysis that so often follows diphtheria on

account of the relatively small number of his cases. He does say, however, that he has not noticed the more frequent occurrence of neuritis in cases that have been treated with serum. We expect to be able to publish within a few months a report on a large number of cases of diphtheria to show that the antitoxin treatment, instead of conducing to the occurrence of multiple neuritis, not only does the opposite but has a most benign influence upon this condition when symptoms of neuritis appear early in the disease.

In this country at least tetany is not a common condition. We believe, however, that its occurrence is more frequent than the scant literature of the subject would lead one to believe. This is so because, in all probability, a number of cases in which the symptoms are comparatively slight go unrecognized, while others are diagnosed as "fits" or "spasms." The nature of tetany is still a matter of active dispute, the most universally accepted view of its causation being that it is a neural or neuro-muscular manifestation of some hemic poison of endogenous or exogenous origin. Comparatively few writers have subscribed to the views of Kassowitz and others that it is a cerebral manifestation of rachitis, analogous to laryngismus stridulus, for it is believed that such a view is opposed not only by experience but by the tenets of modern pathogenesis. It seems to be very probable that the toxic substance that causes the symptom tetany is absorbed from the stomach, and that it is formed as the result of functional derangement of that organ or of organic disease. It is a well known fact that the most fatal form of the disease is associated with a peculiar destructive process in the walls of the stomach. Added to this there may be some special vulnerability of the nervous system analogous to that existing when chorea develops from some humoral poisoning. Oddo has recently asserted that the contention of many German writers that laryngeal spasm is pathognomonic of tetany is a fallacy. It may occur just the same as spasm of the ocular muscles and stiffness of the muscles of the neck occur, but it is no more pathognomonic of this condition than the latter are of meningitis.

In the treatment of tetany this writer does not suggest anything new, but basing his therapeutic suggestions on the modern conception of the disease he recommends the removal of the toxic factors by means of stomachic and intestinal lavage; and at the same time he administers substances that

contribute to a condition of the intestines that is at least inimical to fermentation and putrefaction, such as small doses of calomel and benzo-naphthol in one-half grain doses five or six times a day. If there be any indication for the use of vermifuges they should be given. The peccant activities of the poison on the neuro-muscular system are counteracted by the administration of bromide of strontium and chloral. In our estimation bromide of strontium has no superiority over any of the other bromide salts, and the chloral is the most efficacious factor in the combination. We are glad to note that this author recommends the use of chloroform to cut short the tetanic condition when it becomes very severe.—*Pediatrics*, Dec. 15, 1896.

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**CONTRAINDICATIONS OF SALICYLIC  
TREATMENT IN ACUTE RHEU-  
MATISM.**

JACCOUD (*La Semaine Médicale*, Oct. 28, 1896) holds that the beneficial action of salicylate of soda in acute rheumatism is confined to the joint affection, and has no effect on the visceral complications. He never prescribes it where there is endocarditis; in pulmonary complications it increases the dyspnea, promotes the appearance of albuminuria, and when there is headache, delirium, or other cerebral phenomena, might entail the patient's death. In the more common form of rheumatism in which the visceral complications are of moderate intensity and do not show till the second week, it is not unusual to meet with a sort of alternation in the severity of the arthritis and the cardiac or pleuro-pneumonic affection. Salicylate of soda, he believes, in relieving one aggravates the other, and to a proportionate extent. He quotes statistics of Donald Hood, S. Coupland, G. Smith, and Bodt, to show that visceral complications are more common in cases treated by salicylates of soda than in others, and concludes it ought never to be given when such complications exist.—*British Medical Journal*, Nov. 28, 1896.

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**A FEW PRACTICAL HINTS TO MEDICAL  
MEN ON THE PRESERVATION OF  
THEIR OWN HEALTH.**

In the *British Medical Journal* of December 19, 1896, was published an address delivered by Mr. JOHN M. TEALE on this subject before the Leeds and West Riding Medico-Chirurgical Society. He began by saying that he pro-

posed to offer a few practical suggestions as to how each of us may do something to take care of his own health, which is of some considerable value not only to our families and our patients, but to ourselves. In reading the addresses delivered to students at the opening of the October Sessions one is often struck by the vast variety of suggestions that are made as conducive to success. But were the author asked what, in his opinion, would most conduce to the success of the general practitioner, he should say power of concentration and command of temper.

By power of concentration he means that power by which a man, however wearied, on entering a house is able instantly to abstract his brain from everything that has gone before, and to concentrate his mental faculties on the case that is before him. Patients are naturally somewhat selfish, and are very quick to observe if they do not get full attention, and if, when the finger is on the pulse, the mind is with the patient who preceded him.

Secondly, command of temper. To the quick, high-strung, sensitive man, exhausted by the worry and anxiety of daily life, thorough command of temper with testy, querulous, exacting patients can only be obtained by rigid self-control commenced in early life. To be forever bearing in mind that the patient is the sufferer, that testiness and ill-temper are due to physical weariness and distress, and not to disloyalty to the doctor, is a task that will try the strongest nature.

If, then, concentration and command of temper are essential to success, how can they best be cultivated and obtained? Surely by living as far as possible a simple, healthy, outdoor life, in constant physical training. Young men nowadays, as a rule, at some period of their student life pass a year or two in a high state of training; but how many of them, amid the worries and distractions of a busy practitioner's life, keep up that condition of training to mid-life, still less to old age? Why should a man become stout and short of wind because he has reached fifty? Simply because he is struggling with his life-work when his physical condition is not fit to grapple with it.

The whole subject of physical training and its usefulness in moderation was brought prominently before the writer in his Oxford days by the late Archibald McLaren, whom he looks upon as the pioneer of modern and rational gymnastics. He well remembers

being selected as one of three lightweights, in conjunction with several heavyweights, to show off the new gymnasium to a squad of army sergeants from Aldershot under Major (now General) Hammersley, and how in a month they were sent back with largely increased biceps and largely reduced abdomens. This was the beginning of regular gymnastic training in the British Army, the results of which were seen at the military tournaments at Islington.

For two years also the author steered his college crew. It was then customary for the coxswain to take charge of the training of the crews, and he was expected to be in such training himself that he could take an oar at any time while the captain coached. The writer learnt then, and has never forgotten, what ease it gives to daily work to be in good condition, and has done his best to remain so ever since.

Assuming that a man is physically sound, and has cultivated athletic exercises in youth, it is quite surprising how easily that condition can be maintained provided only it be done regularly. He remarks that the "strong men" who exhibit in public rarely practice their feats in private, and rely on light dumbbells to keep them in good condition.

For most men light Indian clubs, or the Ranelagh, or exercises on both of them, carried out systematically night and morning, will do all that is needed. It is surprising what a rest, after a hard day's work, some active physical exercise with the arms will be found to be. It is a mistake to suppose that the busy man wants a great deal of physical exercise. His ordinary day's work, with what it involves in taxing mind and body, is generally nearly enough for him, with some physical exercises, as suggested. It is always well to have something in hand, for extra strain comes most unexpectedly. It is well to cultivate the art of sleeping for a few minutes at any time. A man can only live safely on the interest of his vital strength. Any withdrawal of principal should be promptly replaced.

For a sound man everything that is good is wholesome, taken at proper times and in proper quantities. One should teach his stomach to understand that within these limits every good thing well cooked is good for it. After a man is twenty-five or thirty he only wants as much food as will maintain his weight and not add to it. It is possible to be too busy to dine, in which case a cup of soup, or a sandwich and glass of wine, is

better than a hearty meal. A good dinner implies leisure for digestion. Half-an-hour's leisure before dinner will often enable a man to eat a hearty meal. For most medical men he believes a late dinner is preferable, for if taken in the middle of his work either the meal or the patients must suffer. The fewer the meals the better for health. Two good meals and a moderate one are enough for most healthy men leading a busy life.

Teale says: "Mix your wines by all means, provided they are good, and you do not take too much of them. Spirits are useful when jaded or exhausted as a change from wine at dinner, but are unnecessary and hurtful when taken between meals or at bedtime, except for special reasons; 365 glasses of whiskey taken in one year at bedtime are an unnecessary and severe tax on the liver when its work is in full swing."

An ordinary healthy man may have a cold bath daily almost up to any age, but as the object is not only to get up a reaction, but to keep it, most hard-working men require that cheapest of all luxuries, a fire, in the dressing-room, and a hot bath towel. If this is followed by a course of Indian clubs in his flannels, a man will be fit to face any weather.

The same underclothing should be worn summer and winter of wool, and only the outer clothing varied. Colds are generally caught either in ill-warmed rooms or through ill-protected feet. With good Jaeger boots and putties, as the serge leg-rollers are called which were introduced by the 10th Hussars from Afghanistan, one will be able, with a good overcoat, to drive with impunity in an open dog-cart in a blizzard, especially if one have laid in a store of caloric before starting, and by breakfasting in the wraps in which one proposes to travel.

Light your fire whenever you can endure it; it is the cheapest and best health-giver in the world, especially in cold, thundery weather in the summer. With a well-arranged room and a well-contrived fireplace, most healthy people can learn to sleep with their window open winter and summer.

Medical men are specially liable to badly aired beds, for they are often sent for hurriedly. Nor will the strongest constitution resist such an infliction. This risk will best be guarded against by carrying in your traveling-bag a light flannel dressing-gown to put on the damp sheets.

No medical man should ever have a bad tooth in his head. He is courting disaster if he does so. It is a simple matter to brush

the teeth after every meal, and by rinsing with cold water you get an early intimation of danger.

No amount of precaution can make turning out of bed at night otherwise than dangerous. But if an arrangement can be made by which the clothes can be kept aired and warm, and a cup of hot milk with a teaspoonful of brandy can be procured, the risks can be reduced to a minimum.

One word about holidays. Every medical man should, if possible, have an outdoor sport of some kind. Golf and cycling are good, but perhaps the best of all is fly-fishing. It takes one usually into beautiful country, the exercise is gentle and varied, the interest absorbing, and to the author's mind is far better for the jaded practitioner than scampering half over Europe in a hurry in a second-class railway carriage in charge of a party of tourists.

#### VALUE OF ANTITOXIN IN DIPHTHERIA.

We are told in the *Intercolonial Medical Journal* of Australia of October 20, 1896, by TURNER and ASHWORTH that the use of antitoxin serum injections has caused a large and altogether unprecedented fall in the mortality from diphtheria in the Brisbane Hospital for Sick Children.

This fall in mortality is especially noticeable among the cases in which laryngeal symptoms threaten to cause asphyxia. The proportion of cases recovering without operation has largely increased, and the total mortality has been reduced by three-fourths.

To obtain these results, it is necessary to inject very large quantities of the weaker serums hitherto commonly used in Australia.

No toxic symptoms of any gravity have been observed in any instance to follow the injection of even the largest amount given (50 Cc. in a single injection, or a total of over 100 Cc. in several injections).

The prolonged gradual convalescence observed after severe diphtheria has been in most cases replaced by a speedy return to health.

Both the serum supplied by the British Institute of Preventive Medicine, and that by the Höchst Fabrik under the supervision of Professor Behring, have been found effectual in the most severe cases, if injected in sufficient quantity. Behring's serum has the following advantages: (a) known antitoxin-strength; (b) greater concentration, so that it is sufficient to inject a much smaller bulk

of serum; (c) freedom from decomposition; (d) less frequent occurrence of urticarial rash.

These conclusions they base on careful clinical observation of the majority of the more severe cases of diphtheria occurring in Brisbane, both before and after the commencement of the antitoxin treatment. They have given their results in statistical form, as the only way of presenting them in a condensed and easily comprehensible manner. Though they have attempted to supplement the figures (which are too small for purely statistical treatment) by brief outlines of some of the cases, they are well aware that it is impossible to bring the full force of the clinical evidence before the readers. The effect on the writers' minds is this—that whereas formerly they regarded diphtheria as a most treacherous and fatal disease, over which medical treatment had little or no direct influence, and of which the mortality was inevitably high, they now regard it as a disease for which we have a perfectly reliable specific antidote. They are willing to admit that there may be, and probably are, malignant cases, with secondary infections from the first, which cannot be saved by the serum; but they have never seen any such cases, and they must be exceedingly rare. The fatal cases they have lately seen have all been ill at least four days, usually longer; and there is no reason for thinking that they could not have been saved by earlier treatment. There will always be a certain death-rate from diphtheria, owing to the postponement of treatment until it is too late. They hardly expect that their hospital mortality will be reduced below ten per cent., unless fewer moribund or advanced cases with secondary complications are brought in. But if the profession and public once grasp the truth that with rare exceptions no child ought to die of diphtheria, it is probable that the actual mortality will become very low.

But to attain this result much larger doses of antitoxin should be given than are at present in common use. The doses hitherto employed, as far as we can gather, are only suitable for the milder cases, or those taken within the first two days of the onset. By the use of serum of the high antitoxin value recently attained under the supervision of Professor Behring, there will be no difficulty in giving doses up to 4000 units. When serum of weak and undetermined strength is used, the only possible course in a severe case is to inject large quantities in repeated doses.



This the writers have done in hospital work, but it is not so easy in private practice. Indeed even in hospitals the use of serum of undetermined strength is to be condemned. It is unfortunate that the antitoxin treatment both in Australia and Great Britain has consisted to a large extent of the injection of insufficient doses (10 Cc. to 20 Cc.) of serums whose only comparative merit is their cheapness. In *The Lancet*, July 18, 1896, will be found a detailed report as to the strength of these serums. As serum of the highest concentration and of known strength is now easily obtainable, it is to be hoped that it will soon be recognized that the use of inferior preparations of unknown strength is not compatible with a conscientious regard for the interests of one's patients.

#### THE THERAPEUTIC USES OF CHLOROFORM.

We have never been quite able to understand why the use of chloroform to abbreviate all sorts of convulsive attacks—eclampsia of the infant, of the adult, genuine epileptic attacks, hysterical and toxic convulsive attacks, and even epileptiform convulsions dependent upon organic diseases of the brain—has not become more universal. It has three virtues that must commend it to every thinking practitioner: it does the work quickly and promptly, it is practically devoid of danger, and its use is not attended with distressing or malign after-effects. Why time should be wasted when one is called to a child or an adult in convulsions of an eclamptic nature, by putting them in a warm bath, or giving a rectal injection of chloral and bromide, or doing a half-score of other things that have nothing to recommend them except a halo of tradition and the consecration of inherited usage, is difficult to comprehend. An eclamptic attack, it matters not whether it be a manifestation of genuine epilepsy or not, is an evidence of the diminution in the potentiality of those structures one function of which is to subserve motivity, and a perversion of the dynamics of these parts. One attack of such eclampsia contributes to another just as the pathway of a man through a forest contributes to the ease with which he orients himself on a second visit to the same wilderness. It behooves us therefore to cut short every attack of this kind without ceremony, and the best way to do this is by the inhalation of chloroform, not necessarily up to the point of complete

chloroformation, but enough should be given to control the severity of the spasms. After that is the time to give bromides, chloral, etc. —*Pediatrics*, Dec. 15, 1896.

#### THE TREATMENT OF SENILE PRURITUS.

*L'Abeille Médicale* of November 28, 1896, gives the following prescription:

- ℞ Bromide of sodium, 2 drachms;  
Salicylate of sodium, 2 drachms;  
Acetate of sodium, 1 drachm;  
Infusion of gentian, 2 ounces.

A teaspoonful of this solution is given in water one hour after each meal, and when the pruritus is limited to certain regions the following solution is employed locally:

- ℞ Liquor potassi (6 per cent.), 2 drachms;  
Carbolic acid, 4 drachms;  
Linseed oil, 1 ounce;  
Essence of bergamot, 10 drops.

Should the pruritus be generalized the following ointment may be employed:

- ℞ Resorcin, 30 grains;  
Ichthyol, 1 drachm;  
Lanolin, 2 ounces.

#### GUAIACOL IN PYREXIA.

Before the Section on Medicine of the Royal Academy of Medicine in Ireland, held during November, 1896, and reported in the *British Medical Journal* of December 12, 1896, Dr. DRURY read a paper in which he drew attention to the uses and modes of the use of guaiacol, but selected the method of epidermic application recommended by Rondet in 1895, as a means of reducing temperature, as superior to either internal administration or by hypodermic injection. By this method one to ten minims were rubbed into the skin, previously washed, and the part covered with oiled silk. About fifty cases had been so treated. The conclusions arrived at were: (1) As a rule, no ill-effects follow its use. In one case of enteric fever in a female, after the use of ten minims on five successive evenings, collapse occurred several hours after the fifth application; the collapse was recovered from. (2) It very rarely fails to cause a fall of temperature, the fall being greater when the temperature is high than when it is only moderate in degree. (3) The fall reaches its maximum generally about one hour after administration, and is maintained for several hours. (4) After its use the skin becomes moist, and the patient generally sleeps. (5) It does not seem to

have any effect on the course of the disease which is the cause of the fever. (6) It seems to act on pyrexia, no matter what the disease may be which causes it. (7) It usually increases secretion of urine, diminishes the night sweats of phthisis, and often relieves the cough. (8) Cardiac failure appears to be the only contraindication to its use.

A series of cases were then given in illustration, most of which were used merely as test cases, the drug not being used as an ordinary line of treatment. Its routine use was not recommended; but for exceptional cases, where temperature is itself a danger, it is considered a safe as well as a simple and pretty certain method of reducing temperature.

Dr. CRAIG referred to charts of three enteric patients in which the drug had been used on occasions when the temperature became high; a marked fall followed in each case, and that without any injurious effects. It seemed to him that the drug acted by producing perspiration, and that it was the evaporation that caused the reduction of temperature.

Dr. JOHN W. MOORE said that if Dr. Craig's explanation of the action of the drug was correct they would not look forward with confidence to its effect as a reducer of hyperpyrexia in acute rheumatism. Dr. Moore would enter an emphatic protest against indiscriminate attempts to reduce temperature, especially in typhoid fever. The effects of guaiacol in pulmonary consumption were altogether different from its operation in other cases. Its effects when given internally in pulmonary consumption were not so immediate and extreme as when it was used epidermically, and rather depended upon its antiseptic properties and its power of reducing the septicemic conditions of that disease.

Dr. O'CARROLL said he had used guaiacol in phthisis and only hypodermically with the result of always reducing temperature, and without collapse. He preferred the hypodermic application, because they could measure the drug more accurately than in the case of the endermic method.

Dr. WALTER SMITH said the statement that a few minims of this drug rubbed into the skin could reduce temperature within an hour implied two things, namely, that the drug was absorbed, and that it produced a remarkable effect on the interior tissues of the body. He would confine his remarks to the pharmacology of guaiacol. The fact that it was capable of free administration in

the ways described proved that it was comparatively non-irritant; and yet it was closely related to the phenols and other members of the carbolic acid group. How then did it come about that, whilst they dare not rub the poisonous carbolic acid into the surface, they could do so with guaiacol, which was the chief representative of the creosote group, and find it comparatively harmless?

The PRESIDENT said the outcome of the discussion seemed to be that they had got a drug which was not only very useful but also very dangerous. He had reduced temperature with guaiacol in one or two cases with good effect. It had been said that the drug acted by producing perspiration; but it had also been stated that it was a powerful vasomotor constrictor. If that were so, its action might be mechanical. It was also an anesthetic, and had been used frequently for the relief of pleuritic and neuralgic pains. The hypodermic injection of guaiacol had been followed by most alarming collapse.

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#### THE TREATMENT OF PUTRID BRONCHITIS.

*L'Abeille Médicale* of November 28, 1896, asserts that ROSENFELD has obtained good results in the treatment of putrid bronchitis by the injection of a five-per-cent. solution of nitrate of silver into the trachea. He asserts that one to two cubic centimeters of this solution may be injected each day without provoking an excessive cough. As a result there is a diminution in the quantity of the sputum, disappearance of its fetid odor, and an amelioration of the bronchial symptoms

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#### THE TREATMENT OF ACUTE OTITIS MEDIA.

In the *Journal of the American Medical Association* of December 19, 1896, NORVAL PIERCE tells us that in this condition local bleeding has been carefully eschewed. The writer regards cataplasms as not only of doubtful service but actually harmful. They denude the skin of its protective coverings, and thus open up new portals for the entrance of infection. And if a mastoid operation should become necessary the dangers of sepsis are increased by the raw suppurating surface left by the blister in the very field of operating. Further, he is far from being convinced that they have any marked influence on the pain or course of the inflammation.

He regards the employment of cold as of distinct worth in many cases. This is employed by means of a Leiter's coil or a common ice-bag. The ordinary condom is a very good form of bag, being light and flexible, and on account of its peculiar shape especially adapted for coiling around the mastoid region. Heat may be employed, if deemed necessary, by applying hot antiseptic fomentations or the sand-bag.

Anodynes and all other drops have been abandoned. That anodynes are absorbed at all when dropped into the ear is doubtful; that they are infectious is certain. Therefore, as our whole endeavor is toward asepsis they have been abandoned. Narcotics for the relief of pain are best employed internally or hypodermically. Syringing has also been proscribed for reasons already mentioned in speaking of drops. Before perforation occurs irrigation can do no good as a means of cleansing and antiseptics in the middle ear, because the intact tympanic membrane closes off the cavity from the external auditory canal. The external auditory canal may be rendered aseptic much more readily by a moist dressing. It is the writer's experience that irrigation, as a means of applying heat or cold for their antiphlogistic or quieting effects, is not well borne—that is, in a number of cases it has added to the pain and increased the congestion. Besides, an apparatus which will enable us to use continuous irrigation in the external auditory canal is very cumbersome. Wetting the bed and the patient is almost unavoidable, especially when the patient is young. Intermittent hot irrigation has proven harmful in his hands. Occasionally syringing with sterilized saline solution has been allowed to clear the external auditory canal when the secretions take on a cheesy character which accumulates about the walls and membrane. In this connection Pierce exhibited a syringe which he had had made for him by McElroy. It is of glass, which may be rendered aseptic by boiling. In addition it has a removable nozzle. By this device the nozzle, which is the only part in danger of infection, may be changed after each time it is used. Another point in its favor is its extreme cheapness.

Politization is never performed in acute otitis media, either before or after perforation. He regards the procedure in these cases as dangerous, as by it fresh organisms are probably driven into the ear or into the mastoid antrum each time it is performed.

The blowing of the contents of the Eusta-

chian tube into the tympanic cavity is not only unreasonable, but in a high degree dangerous. The mucous purulent contents of the tube may drain off into the pharynx; indeed, the ciliary movements of the epithelium lining the tube renders this quite easy. Why, then, force the more or less septic mucus into the middle ear, whence it can escape only with the greatest difficulty? If our modern observations are correct, and we accept the dictum that the violence and chronicity of otitis is largely due to the amount of secondary infection, are we justified in supplying this very infection-bearing material by our Politization, in order to accomplish a passing re-establishment of ventilation of the middle ear? Surely not. The writer does not believe we are warranted in doing so, even after perforation has occurred. With a perforation it has been said that by Politization we aid in emptying not only the Eustachian tube, but also the middle ear, by driving the contents into the external auditory canal. The same objections are as valid here as they were in regard to Politization before perforation. We unnecessarily run the risk of forcing septic matter from the tube into the middle ear. As regards the discharge, that may be much more readily evacuated from the cavity by means of the capillarity of an aseptic, or better an antiseptic, gauze drain.

Politization is used, albeit with great care, after the discharge has ceased, the perforation closed and due attention paid to the condition of the nose and naso-pharynx. If an inflammation persists here after closure of a perforation, he substitutes Delstanché's rarefacteur, inasmuch as it accomplishes almost as much as Politization in preventing adhesions and ankylosis. If there are indications of a tendency toward adhesions before closure occurs, he employs tubal injections of vasenogen with external massage by means of the rarefacteur, or the latter procedure alone. If fever is present the patient is kept in a recumbent position when possible, although he has had a number of ambulatory patients with temperatures of 99° or 100° F. who made satisfactory recoveries. Obstipation is most usually relieved by the mild chloride of mercury, five to ten grains, combined with an equal quantity of bicarbonate of sodium. When he has seen the case soon enough he has never waited for spontaneous rupture of the drumhead.

Paracentesis has in the writer's hands given the most satisfactory results. Pierce

regards pain with or without fever, and the demonstrable presence of fluid in the middle ear, as positive indications for its performance in acute troubles. As negative indications: (1) the presence of fluid in the middle ear without pain or fever; (2) pain, continuing for twenty-four hours with congestion, but without fever or the demonstrable presence of fluid.

The strictest antiseptics should always be observed. If possible the auditory canal is packed with an ordinary dressing for as long a time as possible before the operation. This moist dressing will be the means of conducting the heat or cold of external applications to the deeper structures. If this is not advisable the canal is carefully swabbed out with sublimate, 1:1000, immediately before the operation. The point which Pierce regards with the greatest favor for incising the membrane is along its inferior circumference, a fraction of a millimeter from its margin.

The position for incision should be the most dependent part of the cavity, and give the greatest chance for the escape of the fluid contents. In skilled hands there is no danger of injuring the fenestra rotunda. With adults anesthesia is unnecessary; when necessary in children, ethyl bromide is used. After the paracentesis the discharge and blood is carefully swabbed away by means of sterilized cotton pledgets. These pledgets are kept constantly on hand and are prepared in the following manner: common toothpicks are used as carriers and the ends of them wrapped with absorbent cotton; test-tubes are filled with these, and the tubes stopped with cotton as is done in preparing them for bacteriological purposes; the whole is then sterilized by means of dry heat. In this way we have always at hand thoroughly sterilized swabs. The external auditory canal is then packed with a strip of sterilized gauze one-fourth to one-half inch broad, care being taken that it barely touches the membrane. As our view of the drumhead is shut off as soon as we introduce the end of the gauze into the auditory canal, he has devised a probe for packing the gauze. It is graduated in millimeters, and by taking the measure of the depth of the canal before introducing the gauze we can see at any time to what depth the gauze has been introduced. This probe is also roughened on the end so that it more readily catches the gauze. He has used iodoform, sublimate, and boracic gauze. Iodoform gauze is irritating to individuals and objectionable on account of its odor, but

on the whole it has been found the most satisfactory. The naphtholated chinolin gauze of Haug would seem to be specially suitable for this purpose, as pointed out by Fougerey. The gauze contains five per cent. chinolin and 2.5 per cent. naphthol. This combination forms a salt which is deodorant, is highly antiseptic, and is soluble in pathological fluids.

After the gauze is in place the vestibule of the auditory canal and the conchæ are packed with sterilized cotton; the whole is held in place by collodion applied from the edges of the cotton to the skin. It is very remarkable what an enormous amount of fluid may be extruded in some cases after such a dressing; frequently the dressing becomes saturated twice or thrice daily. In these cases it were better to put on a voluminous external dressing held in place by a bandage.

In fact, by paracentesis and the subsequent antiseptic dressings all the indications for the relief of acute otitis media are met. If there has existed a diminished atmospheric pressure paracentesis equalizes this as speedily as Politzerization. The congestion is reduced by the local hemorrhage necessarily accompanying the operation. Pain is more effectually relieved in this way in the majority of cases than in any other. The cavum is continuously emptied of its contents by the capillary attraction of the gauze drain, while additional germs are prevented from invading the cavity from the external auditory canal.

While the author is unable to give comparative statistics of this and other methods of treatment, he says that by this mode the course of all cases of acute otitis media is shortened, and the number of cases which go on to chronicity is greatly diminished. Surely complications such as those necessitating operations on the mastoid are very much reduced, and patients treated by this method are much less liable to recurrent attacks.

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#### TREATMENT OF SCARLET FEVER BY BATHS.

According to *L'Abeille Médicale* of November 28, 1896, SCHILL, of Wiesbaden, has reported the results which he has obtained from the employment of baths at 95° and of ten minutes' duration, repeated twice a day during the first week of scarlet fever. He believes that the baths aid in relieving the fever and finally in producing free desquamation, and also believes that such a treatment distinctly decreases the danger of complications.

*THE TREATMENT OF CROUPOUS PNEUMONIA BY THE HYDROCHLORATE OF PILOCARPINE.*

BLIMONAY has employed the hydrochlorate of pilocarpine in sixteen cases of croupous pneumonia, varying in age from two to twenty-five years. The dose which he administered was  $1\frac{1}{2}$  grains in twenty-four hours. After this the dose was progressively diminished. The medicine was invariably given by the stomach rather than hypodermically, and dissolved in water. The patients also received one or two ounces of brandy. No other treatment either internal or external was employed. In nine of these cases the treatment was instituted on the third day of the disease; in the other cases on the fourth day. The conclusions which he arrives at are as follows: Pilocarpine administered on the third or fourth day of the illness exercises no abortive influence over the disease, the attack running on uninfluenced in its duration.

Pilocarpine is not markedly opposed to the spread of a pulmonary inflammation. After pilocarpine is given there is a rapid fall of temperature, which however is not permanent. The pneumonia usually terminates not by crisis but by a lysis or false crisis. Large doses of pilocarpine are of value only in young persons or those who are robust. Should symptoms of salivation come on the treatment must be suspended. In two cases when vomiting came on this symptom was controlled by morphine.—*Rev. de Thérap. Médico-Chirurgicale*, Dec. 1, 1896.

*SULPHONAL IN THE TREATMENT OF NIGHT SWEATS.*

COMBEMALE and DESCHEEMAKER are stated by *Revue de Thérapeutique Médico-Chirurgicale* of December 1, 1896, to have obtained excellent results from the use of sulphonal in the night sweats of phthisis. From fifteen to thirty grains of the drug are given each night. The cough is also diminished. In the very advanced stages of tuberculosis, however, the influence of this drug over the sweat is not marked.

*THE INDICATIONS, DANGERS, AND TECHNIQUE OF UTERINE CURETTAGE.*

In the *University Medical Magazine* for November, 1896, R. C. NORRIS contributes an exceedingly practical and useful article with

this title. He points out that when good judgment has been exercised in the selection of an appropriate case for uterine curettage, the next important step is that the physician should be absolutely certain of his knowledge of the dangers of that operation, and of the proper technique to be employed in order to escape those dangers. Many general practitioners will undertake to curette the uterus who would shrink from a vaginal hysterectomy or even a perineorrhaphy and trachelorrhaphy.

It is very unfortunate that the entering so important an organ as the uterus with various instruments is generally considered an operation of minor importance. It is not exaggeration to affirm that the proper selection and skilful execution of curettage of the uterus, especially when resorted to at a period remote from the puerperium, requires a greater degree of sound surgical judgment, a more intimate knowledge of surgical technique, and a larger share of surgical skill, than are necessary for the repair of a lacerated cervix or a torn perineum.

Briefly stated, the dangers to be avoided are: the introduction of infection which may be followed by serious inflammation of the tubes, the ovaries, and the peritoneum, and even by death from septicemia; laceration of the cervix or of the vaginal vaults, due to improperly executed dilatation; rupture of purulent collections in the pelvis, when these, through faulty diagnosis, have been overlooked; perforation of the uterine wall by the curette, the forceps, or other instruments; the induction of abortion through a mistake in diagnosis; the occurrence of serious hemorrhage; and, very rarely, the possibility of ultimate obliteration of the uterine cavity.

A proper selection of cases for uterine curettage and a knowledge of its technique will reduce these dangers to a minimum.

The time selected for operation in non-puerperal cases should be a few days after the cessation of a menstrual period, in order that sufficient time may be secured during which the endometrium will be regenerated. A preliminary urinalysis should be made. Twenty-four hours before the operation the patient should be put to bed; a saline purge having been administered the day before. The vulva and the vagina must be systematically cleansed the evening before, and the morning of the operation, in the following manner: Thorough scrubbing with green soap and water by means of pledgets of cotton fastened to a sponge-holder should be

followed by free irrigation with a 1-to-1000 bichloride solution, after which the vagina is loosely packed with bichloride or iodoform gauze. Before the patient is anesthetized the rectum should be emptied by one or more enémata, and the urine should be drawn. The instruments he has found most useful for curetting the puerperal and the non-puerperal uterus were then shown. They should always be sterilized in boiling water for fifteen minutes before the patient is anesthetized.

The operator and those assisting him should cleanse their hands with the same care as for a hysterectomy, using an abundance of hot water, with soap and nail-brush, followed by scrubbing with alcohol for five minutes, and a final immersion in a 1-to-1000 bichloride solution.

The patient (anesthetized) is placed in the lithotomy position on a table, when it is always desirable to make a bimanual examination of the pelvic organs to be sure that serious lesions have not been overlooked. Final cleansing as above described is then made, the anterior lip of the cervix is grasped with a double tenaculum and is gently drawn into view when not fixed by inflammatory products, and the cervical canal is thoroughly cleansed. Sometimes it is desirable to retract the perineum. A self-retaining speculum, such as Edebohl's, is very useful for that purpose, especially when one has few or no assistants.

Dilatation of the cervix is not usually required for puerperal cases, but is always employed for the non-puerperal uterus in order to obtain free drainage, which is an essential feature of the operation. For that purpose the anterior lip of the cervix is grasped and steadied with the double tenaculum, and the smaller dilator is introduced. The writer prefers the branched dilators to the graduated bougies; and to avoid lacerating the cervix or even tearing through the posterior wall of the cervix into the peritoneal cavity, care should be taken to learn the direction of the uterine canal, to open the cervix gradually with the smaller instrument, and to be sure the larger instrument passes the internal os before forcible dilatation is begun. After dilating laterally, say for a half-inch, the tension of the instrument is relieved and dilatation to the same extent in antero-posterior and oblique directions is practiced, the position of the blades of the instrument being turned at intervals so as to effect dilatation equally in all directions. In

multiparæ sufficient dilatation can usually be made with safety to admit the finger into the uterine cavity; in nulliparæ an inch registered on the scale of the dilator is sufficient. Usually fifteen minutes should be consumed to complete the dilatation, although the time will depend upon the softness or rigidity of the tissues. A finger placed behind the cervix will indicate the degree of tension to which the tissues are being subjected. The uterine cavity should now be thoroughly flushed with a 1-to-2000 bichloride solution passed through a two-way male catheter or a uterine double-nozzle having a return flow. This plan is preferable to the douche-curette, an instrument frequently employed but not readily kept clean. The sharp curette is next passed to the fundus, and with one hand supporting the uterus through the abdominal wall, the entire cavity is systematically scraped until the cutting edge of the curette imparts a scratching or gritty sensation, which announces the fact that the endometrium has been passed and that the muscle wall of the uterus has been reached. Our work must be thorough, and the entire endometrium must be removed if possible. Areas of diseased and infected endometrium untouched by the curette only serve to re-create and perpetuate the disease our treatment aims wholly to destroy. The regeneration of the mucosa begins in the depths of the utricular glands embedded in the uterine muscle, and our effort is to completely destroy the diseased membrane in order that a new one may be formed. Particular attention, therefore, must be paid to the fundus and to the uterine cornua. For these regions Simon's spoon and Sims's angular curette are especially useful. For the lateral walls of the uterus Sims's sharp curette is preferred. While one instrument may be sufficient, the author has been better satisfied to use three, because the angle of the cutting edge in each is best adapted to a different plane of the surfaces to be scraped. The uterus should again be douched, and the débris removed with the curette forceps—an instrument to be employed with caution, since many of the reported cases of uterine perforation have occurred with it.

When the womb has been emptied of all débris and has been douched, the cavity is swabbed with iodized phenol or a fifty-percent. solution of carbolic acid in glycerin. A pledget of cotton placed around the cervix and the stream from the douche will protect the vaginal and vulvar mucous membrane during the cauterization of the endometrium.

Finally, a strip of iodoform or acetanilid gauze, one inch wide and one yard long, squeezed out of the bichloride solution, is packed into the uterus, either through a cervical speculum or preferably with a slender uterine dressing forceps. If the uterus is large and subinvolved and uterine contractions are desired to promote involution, or if the bleeding is very free, the gauze packing is firmly placed; if only drainage is desired, the packing is more loosely applied. The end of the gauze protrudes into the vagina, which is filled with a loose tampon of gauze. An occlusive dressing is placed over the vulva.

If necessary, the urine is drawn in eight or twelve hours. The vaginal packing is removed at the end of forty-eight hours, the vagina douched, and the gauze renewed. The gauze in the uterus is removed on the third or fourth day, daily vaginal douches of bichloride solution, 1-to-4000, being employed until and immediately after the uterine packing is removed. It is desirable to have the patient rest in bed for a week and at the next menstrual period, during which the flow is likely to be scanty. In septic cases after abortion or labor the uterine and vaginal packing should be removed at the end of twenty-four hours, and the vagina and uterus should be freely irrigated, after which the gauze may be renewed.

The douche nozzle used for puerperal cases should have a large calibre, as this freely flushes the cavity. The mechanical advantage of a copious stream to remove débris from the uterus is self-evident. The curette also should be proportionately large.

The writer states that his remarks on this subject contain nothing new. It has been his purpose to make them practical, and to emphasize the fact that through timely interference with the uterine curette, along the lines he has tried to indicate, the lives of a few of our patients will be spared, some of them will escape the removal of their pelvic organs, and many of them will avoid a life of discomfort resulting from the milder grades of pelvic inflammatory disease.

He alludes to the fact that many gynecologists would criticize the wisdom of an attempt to stimulate the employment of the uterine curette by men who from choice or environment are general practitioners. There is no reason why you should not use an instrument potent for good as well as for evil, provided you will use it with intelligence and with a knowledge of its dangers and its limitations.

#### HINTS ON SEA-VOYAGES FOR PATIENTS.

While the majority of readers of the *GAZETTE* will not have patients who are benefited by sea-voyages, the following suggestions offered by BARBER in the *British Medical Journal* of December 19, 1896, will be of interest to a few. Barber tells us that while serving at sea he was struck by the number of people sent away for the benefit of their health with absolutely no directions as to the precautions that should be observed in the tropics, and as to matters which greatly conduce to the comfort and well-being of the patient.

In the first place, it is well that an entire stateroom should be secured, especially for phthisical patients, as they are at once a source of infection and also a great annoyance to those occupying the same cabin, and should their complaint become serious it is a necessity.

A crowded ship should be avoided, as unless the patient has an attendant he or she cannot have the attention from the stewards and stewardesses that a severe case demands. These last make most excellent nurses, but naturally they are extremely busy in a crowded ship. The stateroom selected should be amidships, where the motion and vibration are least felt, and for a voyage via the Suez Canal should be on the starboard side homeward bound and the port side outward bound.

The patient should be told not to neglect to wear a cummerbund over his pajamas (not night-dress), as the neglect of this precaution frequently leads to severe abdominal pain and diarrhea, and often colitis, owing to the free perspiration which occurs in the tropics being suddenly checked by a stream of cold air from an open port, hatchway, or punkah. This, of course, greatly militates against the good done by a trip.

The patient should never sleep on deck, especially if suffering from a throat disorder, and he should be told to wear a solar topee as soon as he arrives in the tropics, which protects the neck, as those in indifferent health are particularly liable to sunstroke, sun-headache, and thermic fever. I have recently had a patient under my care who was sent away for the benefit of her lungs, which it was feared might become tuberculous. In Cairo she suffered from sunstroke, and two months later came under my care at Colombo suffering from thermic fever and hill-diarrhea contracted up country, all of which might have been avoided with ordinary care. The patient should be told to keep on deck as

much as possible, and not to stay below as they so often do; but they should not sit under a single awning which allows the sun's rays to penetrate. Clothing should be suited to the varying climates—warm clothes for the Atlantic and Mediterranean (according to the time of year) and flannel for the tropics.

The writer thinks all alcoholic cases should be put under the charge of the ship's surgeon at the commencement of the voyage, as he is able to see that they get no liquor. The morning bath should be taken warm by malarial cases, and those who are in delicate health, especially those suffering from enlarged spleen. Very strict orders should be given about diet, as passengers generally eat too much and take too little exercise in spite of the best advice. In the P. and O. service any diet can be procured on the recommendation of the ship's surgeon.

A good deal has been written about seasickness lately. The writer has found the following prescription of great value:

℞ Chloroform, 1 minim;  
Tincture nux vomica, 1 minim;  
Tincture lavender, 10 minims;  
Water, ad 1 drachm.

Mix.

This should be well shaken, and one teaspoonful taken every hour until the nausea is relieved, and five minims acetate of morphine, liquid, if there is much pain. A tight binder will often relieve the pain due to straining, especially in uterine cases. Alcohol is unnecessary in most cases, and the writer thinks many people take too much if left to themselves. Milk and soda, beef-tea and beef-jelly should be given in small quantities at frequent intervals, and crushed ice given to suck.

He thinks many patients would derive considerably more benefit from the voyage if medical men made it a rule to give them a few hints before sending them on board ship; and also not to neglect to give them a letter describing their cases, which they may hand to the ship's surgeon should they find it necessary to consult him.

#### A POWDER FOR ULCER OF THE LEG.

Finely powdered chloride of sodium, 10 drachms;  
Powdered menthol, 1 drachm.

Mix thoroughly and use as a dusting powder after thoroughly washing the surface of the ulcer clean.

This is particularly useful in atonic slow ulcers of the leg, and aids very materially in maintaining antiseptics and producing healing.—*Journal de Médecine de Paris*, 1896.

#### SULPHATE OF SODA AS A HEMOSTATIC.

The *Journal de Médecine de Paris* of November 29, 1896, records the fact that sulphate of sodium is useful when administered internally in oozing hemorrhage as was originally pointed out by Kussmaal. Recently Reverdin has employed with success small doses of sulphate of sodium, amounting to  $1\frac{1}{2}$  grains every hour, in the treatment of grave capillary hemorrhages, whether they be spontaneous or traumatic in origin. Thus in one case in particular in which consecutive hemorrhage followed extirpation of a small benign subcutaneous tumor, and where the bleeding lasted for a very long period of time, arrest of the hemorrhage followed upon the administration of this drug. He has also found it of value in menorrhagia.

Reverdin noted, however, the curious fact that while the sulphate of sodium when injected into the blood or given by the stomach produces these effects, its use hypodermically was without result.

#### CHRONIC SULPHONAL POISONING.

SCHULZ (*Neurologisches Centralblatt*, October, 1896) records a case of chronic sulphonational poisoning with fatal ending. The patient, a woman aged fifty-nine, had been under treatment some years for headaches, constipation, and restlessness, and was extremely hysterical. On account of sleeplessness she had recently been taking sulphonational in doses of fifteen grains, and had taken altogether about half an ounce within a month. When admitted to hospital for obstinate constipation with vomiting, there was a smell of acetone in the breath, the tongue was dry and furred, and there was great thirst, with restlessness and insomnia. All the organs otherwise were normal; the urine was normal. The next evening twenty-five grains of sulphonational was given, and the following day the urine was scanty, brownish-red in color, but free from albumen. Four days later the gait was unsteady, and five days after this there was weakness of the limbs and anesthesia of the legs down to the ankles; knee-jerks, previously normal, were now difficult to obtain. Weakness increased, the knee-jerks disappeared, incontinence of urine and feces occurred, and two days later the patient died suddenly. Since the single dose of sulphonational mentioned the urine had continued brownish-red with no albumen, but a few altered red-blood corpuscles. The color was found to be due to hematomporphyrin. Schulz considers that the



toxic results after the one dose of sulphonal were due to the obstinate constipation present causing the sulphonal to be retained in the body longer than usual. Great caution should therefore be exercised in ordering sulphonal for patients who are constipated, and where it is ordered a careful watch should be kept on the urine for hemato-porphyrin.—*British Medical Journal*, Nov. 28, 1896.

#### CHEMICAL TREATMENT OF MORPHINISM.

ERLENMEYER (*Le Progrès Médical*, Aug. 1, 1896) has for three years abandoned the method of rapidly cutting off morphine, which is associated with his name, in favor of one which he finds superior in respect of results. He noticed that the sudden deprivation of a morphinomaniac's drug was associated with the symptoms, both direct and remote, of hyperacid dyspepsia; actual investigation showed that when the sufferings caused by its discontinuance were most severe the sound revealed the presence of excess of hydrochloric acid in the stomach. The reason of this can be deduced from Alt's researches, which show that morphine injected under the skin is largely excreted into the stomach, where it must exert a narcotic influence both upon the gastric glands, inhibiting their secretion, and upon the nerves, benumbing their sensibility. When the source of these actions is removed exactly the reverse changes take place: an excess of acid is poured forth upon the hypersensitive nerve-endings, producing the symptoms of gastric disorder and of reflex nervous disturbances. To counteract this effect Hitzig washed out the stomach and introduced an alkaline solution of Carlsbad salts in place of the strongly acid gastric juice, with marked relief. Erlenmeyer aims, on the other hand, at the neutralization of the hydrochloric acid *in situ* by means of Fachingen water, which contains 0.35 per cent. of bicarbonate of soda. He has treated over thirty cases in this manner, with an entire absence of either gastric or nervous symptoms. It is noteworthy that, although the patients are perfectly well and comfortable without it, the craving for morphine remains unappeased, and they still shriek like maniacs for the drug. To make his treatment absolutely systematic the author intends to administer hydrochloric acid during the morphine-taking period, so as to avoid the subacidity of the stomach, and to retain the natural relations of the nerves to the acid.—*British Medical Journal*, Nov. 28, 1896.

#### ATROPINE AS A MEANS OF MITIGATING CERTAIN INCONVENIENCES OF QUININE.

In the *Lyon Medical* of January 3 there is an article on this subject by P. AUBERT, who calls attention to a new employment of atropine in the correction of several inconveniences caused by quinine.

Among the symptoms which are produced by the administration of quinine, even in doses of from six to eight grains, the most frequent are buzzing and ringing in the ears, a sound like that of rushing water, deafness, vertigo, and headache. In certain cases these symptoms are accentuated, and the patients refuse to continue the use of the drug.

M. Aubert relates the histories of three cases of neuralgia in which he was able to attenuate to a very great degree, and even to suppress, these disagreeable symptoms by the addition of small doses of atropine sulphate. From five to seven grains of quinine were given at a time, and to each dose the author added 0.007 of a grain of atropine sulphate. In one case this prevented the disagreeable symptoms, and in the two others greatly moderated them. The periodical pains were allayed, and no appreciable symptom of atropinism was experienced.

M. Aubert states that he has not had occasion to use larger doses of quinine, and does not know what the results would be with larger quantities. These facts, however, seem to be worthy of being called to the attention of physicians, as he is not aware that atropine has before been employed for the purpose of mitigating the disagreeable symptoms provoked by quinine.—*New York Medical Journal*, Jan. 23, 1897.

#### SHOULD THE INTERNAL USE OF ATROPINE BE DISCONTINUED?

LEPINE (*La Semaine Médicale*, Nov. 25, 1896) calls attention to the fact that more deaths have followed medicinal doses of atropine than of any other drug. If possible, therefore, other drugs should be substituted for it. Atropine has been used in the following diseases: (1) Neuralgia and other painful affections. Considering the large number of analgesics available it should be used in the present day in exceptional cases only—for example, in angina pectoris. (2) Whooping-cough and asthma. If the cases are severe and have resisted all other treatment, atropine may be tried. The same applies to (3)

epilepsy. (4) It is very doubtful whether it is of any use in hysteria, paralysis agitans, and other tremors. (5) Chronic constipation. As there are plenty of substitutes its use should be discontinued. (6) Lead colic. In this the subcutaneous use of atropine has more disadvantages than advantages. (7) Nocturnal enuresis. Great caution is necessary, since large doses are required as a rule. (8) As a cardiac tonic, and in those cases of permanent bradycardia which often end in epilepsy. Atropine has been tried without much success in the latter cases, possibly because a slow pulse does not always correspond to a slowly acting heart. According to Dehio it may benefit slight cases of cardiac irregularity, but is without effect in severe. (9) In night sweats it acts well, but although small doses tend to prevent collapse, which is common in phthisical patients, larger ones increase the liability to it. To begin with a dose of  $\frac{1}{100}$  grain is unjustifiable in advanced cases of phthisis. (10) In chronic hypersecretion of HCl by the gastric mucosa several observers have found that atropine diminished the secretion, but others deny this. However, considering the bad effects of this hypersecretion on the gastric mucosa, in the present state of our knowledge atropine must still be tried. (11) Some observers state that atropine given hypodermically arrests hemorrhage (hemoptysis, etc.) by its action on the arterioles. (12) The injection of atropine before the administration of chloroform to prevent syncope has been given up by surgeons. (13) It has been recommended as an antidote to barium salts, hydrocyanic acid, nicotine, pilocarpine, veratrine and muscarin poisoning. (14) The question of its use as an antidote to opium is left by the author for a further communication.—*British Medical Journal*, Jan. 9, 1897.

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**TREATMENT OF A CASE OF ADULT HYDROCEPHALUS BY SUPRATENTORIAL AND SUBTENTORIAL OPERATIONS.**

WILLIAM GORDON in *The Lancet* for January 9, 1897, discussed the above subject. He says when we recommend trephining for the relief of intracranial pressure it cannot be a matter of indifference whether the opening be above or below the tentorium, even when we do not aim at the removal of the cause. When the cause is situated below the tentorium this is especially obvious because the subtentorial space is so small compared

to the general cranial cavity, its walls and roof are so unyielding, its outlet above and below so narrow, and a portion of its contents so vitally important and so sensitive to compression.

Adult internal hydrocephalus, apart from acute meningitis, is almost always due to subtentorial tumor, and is indeed a very common consequence of such a tumor. The tumor causes the hydrocephalus either (a) by compressing the veins of Galen; (b) compressing the outlet from the lateral ventricles; or (c) compressing both. There is a certain number of cases where, at the necropsy, the mechanism has seemed uncertain, but one of the above appears in most instances to be the correct explanation. From this it follows that in order permanently to remove the hydrocephalus in a case of tumor (at all events, in most instances) the tumor must (1) be removed; (2) subside—"be absorbed;" or (3) become arrested at the same time that relief is afforded by some means to the compression already set up before arrest occurred.

As to removal, in the first case the opening would naturally be made below the tentorium. But such cases are few, because at present there are few subtentorial tumors which admit of removal. Some are undiscoverable from lack of exact localizing data, and cerebellar tumors are very apt to belong to this class; some are inaccessible on account of their remoteness from the trephine hole; some are untouchable because either of their position amongst vital structures, their extent, their nature, their attachments, or their complications. The statistics show this. Dr. Hale White's series of 100 brain tumors includes 41 in which there was a subtentorial growth, 6 in the pons, 1 in the pons and medulla, 1 in the medulla, and 4 growing from the dura mater. Of these 41, White considered that 6 cerebellar tumors and 1 growing from the dura mater could probably have been removed—that is, about 17.5 per cent., a percentage which seems to contrast very favorably with his estimate for the whole brain, viz., 10, or at most 14, per cent. There is, however, a further consideration on which Dr. White lays emphasis: How many of these were discoverable? Cerebellar growths, which form the majority of those removable, are apt to be latent or to give little more than so-called "general symptoms"—e.g., headache, vomiting, and optic neuritis. But the optic neuritis in cerebellar cases is remarkably constant, more so, perhaps, than in tumors of any other part of the brain, usually

early and often obtrusive, because loss of sight is often an early event. If, therefore, optic neuritis were absent he cannot but think that we should hesitate to trephine for the removal of a supposed cerebellar growth unless we had other very pronounced evidences of its existence.

We may secure the subsidence of the tumor. Whether this ever applies to any tumor except a gumma is doubtful, but in any case subsidence requires time, and when symptoms are severe time cannot be afforded. Sudden death may intervene and is far from uncommon. It is, indeed, rather startling to note that out of seven cases which Dr. Hale White considered removable three died suddenly. Sight may be lost while we are waiting, and the combination of optic neuritis due to tumor and compression of the chiasma due to hydrocephalus is apt sometimes to act rapidly. Lastly, it is conceivable that the cortex may suffer from long-continued pressure. What can we do in the meantime? Two operations are open to us: we may trephine above the tentorium and tap or even drain the lateral ventricles (bearing in mind the two main risks of sepsis and over-quick escape of fluid), or we may trephine below the tentorium and allow the subarachnoid space to empty itself. All we want is temporary relief, and either may afford it.

As to arrest, but few cerebellar tumors are syphilitic, and cerebellar tumors form the majority of subtentorial tumors, therefore presumably this majority will not subside under iodide and mercury or otherwise. We can then only hope for arrest, and fortunately arrest is not very rare, especially in the case of tuberculous masses. But we must manage more than a mere arrest of the growth, for there is pressure already set up and we have to relieve it, and relieve it permanently. For this purpose a supratentorial opening will not do, since tapping the lateral ventricles is plainly out of place; and permanent drainage is too dangerous to be thought of. But another possibility presents itself. May not an opening made below the tentorium effect what we require? It will certainly relieve the general subtentorial pressure, and even when skin and muscle are closed over it, it will continue to give additional space. By thus relieving the general pressure may we not fairly expect it also to relieve the local pressure on the veins of Galen or the outlet from the lateral ventricles? If so, the cause of the hydrocephalus should disappear and the hydrocephalus with it. In the following

case the conclusion that something of this sort has occurred can scarcely be escaped:

The patient, a rather strumous-looking girl aged seventeen years, was admitted to the Devon and Exeter Hospital on December 28, 1894, with complete blindness, well marked double optic neuritis, headache, and a history of vomiting. She was not anemic, had no symptoms of plumbism, and her urine was normal. She gave the following history, which her mother confirmed: Up to the preceding March she had been perfectly well, but about that time she noticed that when out walking in the dusk a dark shadow would suddenly come over her sight, and "for one or two minutes" she could not see. At first this was very occasional, but gradually it became more frequent, occurring several times in the same evening, and the loss of sight became longer, "three or four minutes at a time." Later this began to occur in the daytime as well, and soon looking at any bright light would take away her sight for several minutes. In the intervals vision was becoming progressively worse. She had always been subject to "bilious attacks" of headache and vomiting, but since March these had become more frequent—about once in two weeks, usually in the morning, and accompanied by vertigo. On November 5, 1894, she went to the West of England Eye Infirmary, being then almost blind. Pronounced double optic neuritis was found and the following note was made: "Vision of the right eye, shadows; of the left, 1-60. She has had for the past week shaking attacks down the right side, occasionally only the arm being affected. These attacks came on on alternate days, and she was sick the whole day. The attacks did not begin in any particular spot, and she did not lose consciousness. There is constant headache, most acute over the left ear; no tenderness of head discoverable, no paralysis of motion or sensation."

She was put on a mixture of bromide and iodide of potash, and for a time the headache and sickness disappeared, nor were there any more "shaking" attacks. On Christmas night she was awakened by intense headache all over her head, with violent vomiting and "shaking" all over, and great tenderness of the skull. She was admitted to the Devon and Exeter Hospital on the 28th. As regards past illnesses, she had had none lately; she had scarlet fever as a child, but it left no sequelæ. She had never had a blow on the head or any discharge

from, or pain in, either ear, and had never been deaf. Her father and mother were both alive and well, aged forty-six and forty-four years respectively. A brother and sister died in infancy from convulsions. Her mother's sister died from what appears to have been phthisis. There was no evidence of syphilis. The patient was a fairly nourished but somewhat drowsy looking girl. She was absolutely blind; speech clear but deliberate; her answers were intelligent but delayed, and then commencing rather suddenly in an unnecessarily loud tone. Memory was good. She walked easily and well when guided. There was a slight headache on the left side of the head between the ear and the occiput; there was no sickness and no giddiness, and the patient slept and ate well. She was given thirty grains of iodide three times a day with small doses of mercury. There was a very slight tremor of the right arm, which movement did not increase. No paralysis of motion or sensation was present. The right knee-jerk was greatly diminished, the left being normal. The condition of the cranial nerve was as follows: There was complete bilateral anosmia. Absolute blindness existed for the last week; the pupils were equal, but sluggish in reacting to light. No strabismus or nystagmus was present, but both lateral conjugate movements of the eyes seemed feeble. The heart, lungs and abdomen were natural, and the temperature was normal. The optic neuritis was very intense, and the swollen papillæ were rather pale. The diagnosis was intracranial tumor. The early blindness, occipital headache, early and sometimes severe vomiting and vertigo, with absence of motor or sensory paralysis, favored the suggestion that it was cerebellar. The "shaking attacks" in the arm and the persistent slight tremor in it, taken with the sluggish ocular movements, might have raised a suspicion of its being pontine, but pressure on the pons from above might, it was thought, explain these. The drowsiness, slow speech, and delayed answers, with the early blindness, were regarded as suggesting distention of the lateral ventricles. Putting everything together it was considered that the tumor was certainly subtentorial, and probably in the fore and under part of the cerebellum. As iodide and mercury were evidently useless, and it was possible that operation might in some measure restore the sight and relieve the headache, it was decided to trephine. It did not then occur to the author that trephining could prove to be more than a palliative

measure, and therefore the position of the opening seemed immaterial.

Accordingly, on January 1, 1895, the patient was trephined. The centre of an inch trephine was placed on a line drawn vertically from the external auditory meatus and three inches from the antero-posterior midline of the skull. The dura mater bulged and little, if any, pulsation could be perceived, and on incising it the brain bulged out so forcibly that to prevent an immediate and considerable hernia it was necessary to push a small trocar and cannula into the ventricle. About six drachms of clear, slightly albuminous fluid was drawn off. The brain bulged less and pulsation could be seen in it. The flaps were replaced and sutured. The patient rallied well and the wound did admirably. On the 3d some slight amnesia was noticed, and this was more marked next day, when some slight weakness was observed in the right side of the mouth and the right side of the tongue. These symptoms were considered to be due to the position of the opening, and soon disappeared, so that on the 7th they were noted to be gone. The temperature had remained normal since the operation, and the headache had completely left her; there was also no further vomiting or vertigo. The sight, however, had not returned and did not do so subsequently. Other symptoms now began to make their appearance: the speech became blurred and sibilant as if she were speaking with her mouth full of saliva; slight divergent squint was observed, apparently from weakness of the internal recti, and there was some nystagmus on looking towards the right. On the 8th there was slight proptosis, more marked on the right side, and slight nystagmus on looking either right or left; she was drowsy, with a furred tongue and offensive breath. There was defective sensation to touch over the lower part of the face on the right side, complete loss of sense of touch all over the right arm (the sense of pain was retained), and allochiria over the left arm; on the legs and trunk there was patchy anesthesia; the right leg felt "sleepy and tingling." On the 9th some weakness was noticed in the right hand, and the next day it became absolutely palsied; both knee-jerks were completely lost; there was no weakness of either leg. On the 11th the hand began to recover power, but there was slight ptosis noted on the left side. On the 14th, although there was no weakness of legs, she could not stand on attempting to do so (for the first time since the operation),

as there was marked incoordination, the legs being thrown wildly about. On the 17th the left pupil was noticed to be larger than the right, the right reacted slightly to light, but the left not at all. The relative size of the pupils after this date was somewhat variable, but when unequal the left was always the larger. On the 20th the hernia cerebri, which had been steadily increasing, had become so large that it was feared the skin over it might give way, and therefore an exploring needle was pushed through it into the ventricle and eleven drachms of fluid drawn off. On the 26th the patient was very drowsy and said her right leg felt sleeping and tingling again. Next day she complained of severe pain in the right side of the abdomen, which was extremely hyperesthetic. Her temperature rose to 103.2° F. with a slight rigor, and the right arm and leg became flaccid and powerless. With this the right knee-jerk, which like the left had been completely abolished, returned and became excessive, with ankle clonus, the left knee-jerk remaining absent. On the 30th she was very irritable and lay curled up on her right side. There was some occasional retraction of both sides of the mouth. On February 3 she was almost unconscious, scarcely recognized her mother's voice, and passed her motions under her. The temperature had again become normal. From this date she improved, the hyperesthesia and irritability passing off, and some return of power showing itself in the arm and leg; but the hernia was again increasing, and drowsiness became very marked. At last, on February 12, this almost amounted to unconsciousness; she evinced no interest in her surroundings and seemed steadily passing into coma. So serious did her condition appear that it was thought admissible to run the risk of draining the ventricle, and a small hydrocele trocar and cannula were again passed in through the hernia. Before withdrawing the cannula a very small (No. 1) catheter was pushed in and afterwards tied in place, large dressings being applied over it. A great quantity of fluid drained away, the catheter being kept in for three days. The effect of this drainage was unmistakable: improvement at once set in, and on February 18 a note was made that "she is much better, lies straight in bed, and is bright and cheerful." Her movements became brisk again and the drowsiness vanished. After the catheter was removed the drainage did not cease, but merely lessened, the fluid continuing to escape apparently along the track the

catheter had left. On February 25 the "hernia less tense, greatly better." The drainage now ceased, and with its cessation drowsiness began to return, so that on February 28 "she is very drowsy again; no drainage." On March 1 free drainage through the hernia recommenced spontaneously and went on intermittently for a fortnight, one or two days at a time with intervals of two or three days. With this the drowsiness again disappeared and remained absent, and she began to regain the flesh which she had lost. On March 11 it was noted that there was some weakness of the conjugate lateral movement of both eyes toward the right. Then came a week during which there was no drainage, and drowsiness again became very marked. It now occurred to the writer that a subtentorial opening might have the effect referred to above, and accordingly on March 21 a second operation was performed.

After raising the soft parts a three-quarter inch trephine-hole was made over the left cerebellar hemisphere, which bulged considerably. It was thought possible that the tumor might be cystic, and so a small trocar was passed in two directions forwards, inwards and upwards, but no fluid was found. The flap was replaced and sutured; the patient rallied well, and the wound did excellently. There has never been the slightest return of drowsiness since this second operation. An attack of vomiting and headache occurred about four months ago, which rapidly subsided under iodide and mercury.

On December 14 the reporter saw the girl at her home. She was perfectly intelligent, cheerful, and happy; she showed no trace of drowsiness, her answers were not delayed, and she only occasionally hesitated for a word. There had been no return of drainage through the hernia, and the hernia was greatly reduced in size and quite flaccid. This reduction was no doubt largely owing to a gentle continuous pressure applied by the operator. There was a considerable but soft bulging over the subtentorial trephine-hole. Smell was absent, but taste was present (said to be variable); sight remained absent and the discs were white and filled in, but without much change in the calibre of the vessels. The conjugate movement of both eyes was to the left (it used to be to the right), was weak, and there was some nystagmus in all directions. The pupils were large and equal, reacting slightly to light. There was no proptosis. Sensation to touch was normal on the face. There was very slight weakness

of the right side of the mouth, and the tongue deviated slightly to the right. Her right hand was powerless, but she could move the arm fairly. Both legs were very weak and she could not stand, but there did not seem to be much difference between them except that flexion of the ankle was weaker on the right than on the left; sensation was lost on the right leg from the foot to slightly above the knee, and on the right hand and half-way up the forearm. The plantar reflexes were normal, the left knee-jerk was lost, and the right exaggerated, and there was ankle clonus on the right side. The sphincters were normal. She had no pain of any kind and no sickness, had an abnormally good appetite, and had decidedly gained flesh. The growth seemed to have been arrested. Whether the arrest is permanent remains to be seen. If it was tuberculous, as the writer is inclined to think, tubercle might show itself sooner or later in the lungs. She had an occasional slight dry cough, but no physical signs in the chest.

The case was clearly one of intracranial tumor; it was also clearly one of subtentorial tumor; internal hydrocephalus was marked and increasing; a supratentorial trephining was a means of gaining time; and a subtentorial trephining appeared to remove the hydrocephalus permanently.

#### INTUSSUSCEPTION IN CHILDREN.

Mr. PICKERING PICK in the *Quarterly Medical Journal* for January, 1897, presents a valuable paper on Intussusception in Children. First of all, he advises distending the bowel by inflation of air, which he believes is a better and safer method of reducing the invagination by mechanical means than the distention of the bowel by water.

The manner of performing the inflation is as follows: The child should be clothed in a jacket of wool, and the legs and arms covered with wool and bandaged, as it is very important to keep it warm during the necessary manipulations. It is then anesthetized, and an ordinary enema pipe introduced into the rectum. This pipe is connected by means of a piece of india-rubber tubing to a pair of common bellows, or, if it is at hand, a Lund's inflator. The outside of the tube around the anus is carefully packed with wool, which is held in position by an assistant, so as to prevent the escape of air by the side of the tube. The child is now inverted and held by a nurse, whilst the bellows are slowly and steadily worked by an assistant. The sur-

geon should have his hand placed on the abdomen of the child so that he can feel the tumor. As the intestine is inflated he will gradually feel the colon becoming distended, and he can regulate the amount of air introduced and stop it as soon as he feels the colon is distended as far as is safe. If the plan succeeds and the invagination is reduced he will suddenly feel the tumor disappear from under his hand, and the air will become diffused over the whole abdomen, so that what was at first distention of the colon is now a uniform distention of the abdomen. He attaches more importance to this sign than to the sudden disappearance of the tumor as an indication that the intussusception has been reduced, because this latter sign is very liable to mislead. It frequently happens on inflating the intestine that the air causes a change in the position of the tumor, and it disappears from under the hand without the invagination being reduced, and if reliance be laid on this sign it may be thought that the intussusception has been relieved when this is not really so. The writer has more than once been deceived by this, and therefore he always looks out for the sudden diffusion of the air over the whole abdomen as the characteristic sign of reduction. If this is felt the child should be laid down and put quietly to bed, with as little movement as possible.

The author then passes on to a consideration of the treatment by the introduction of a fluid into the bowel; and in doing this great care must be taken, as serious injury to the bowel has been known to result from this proceeding.

The operation as regards its preliminaries is exactly the same as for the inflation of air. The child is swathed in wool, anesthetized, and inverted; a catheter connected by an india-rubber tube to a reservoir containing a pint and a half of the saline solution is introduced into the rectum, and being packed round with wool, is held by an assistant. The reservoir is now raised to the height of three feet above the anus and the fluid will be felt gradually distending the colon. It should be retained there for a few minutes, and then allowed to escape. An examination of the abdomen should now be made, and if the tumor has disappeared the infant should be returned to its bed and kept warm. No opiate should be given, as this may quiet the child and mask the symptoms, which otherwise would persist if a successful reduction has not been accomplished. Probably,

if the injection does not succeed in accomplishing its object the first time it is used it is wiser and safer not to resort to a second attempt, but to proceed to other measures. Some surgeons, however, recommend a second and a third trial.

A third method of reducing an intussusception other than by operation is as follows (this plan is not often successful, however, and can only be applied under certain conditions; that is to say, when the child's abdominal parietes are thin and there is no distention of the gut, so that the tumor can be very easily felt and almost grasped with the fingers): Place the child thoroughly under the influence of an anesthetic, so that the abdominal muscles are completely relaxed, then seize the gut between the forefinger and thumb immediately below the tumor and by a kneading movement gradually push the tumor backwards along the course of the colon. In this way he has succeeded in reducing an intussusception; but of course it is only applicable to the ileo-cæcal or ileo-colic varieties, and would be scarcely likely to succeed in a case of enteric intussusception. Ordinary massage has also been applied to the abdomen in the course of the colon, but the writer has never succeeded in reducing an intussusception in this way, though he has frequently tried it.

Treatment by operation is a very severe proceeding in infants and quite young children, and is often followed by death. There is a very strong feeling amongst some medical men that abdominal section on an infant under the age of twelve months is almost certainly fatal. But this is not so. Scattered up and down the pages of medical literature will be found many cases of laparotomy in children of this tender age which have terminated successfully, since Mr. Howard Marsh reported the first known successful case in 1875 in an infant six months old. Dr. Wiggin, in the *Medical Record* of January 18, 1896, has recorded sixty-four cases which he has collected of laparotomy undertaken for the relief of intussusception in infants under one year of age. Of these, twenty-one recovered and forty-three died, giving a mortality of 67.2 per cent.

Dr. Wiggin goes on to say: "If we count only the operations, successful and unsuccessful, that have been performed since the perfected technique of abdominal surgery has become generally known—say since 1889—we have a total of eighteen cases, of which fourteen were successful and four

unsuccessful, giving a still lower percentage of mortality, or 22.2 per cent., which the writer believes is a fair estimate of the risk to-day of abdominal section performed on a young infant for the relief of this disorder, if performed within the first forty-eight hours of the onset."

Dr. Wiggin has drawn his statistics from cases which have been recorded in the medical journals, and we all know the very natural tendency there is for surgeons to record successful cases and leave unsuccessful ones unpublished. To make the statistics of any value, we ought also to know how many cases each surgeon who records a successful case has operated on unsuccessfully.

With regard to the technique of the operation: The incision is best made in the median line, as it enables one to deal more readily with every part of the abdominal cavity. After the abdomen has been opened every care should be taken to prevent the escape of the intestines from the abdominal cavity; for a very considerable percentage of the mortality is due to this. If the intestines are allowed to escape they at once become distended with air, and there is always great difficulty in getting them back. Often a considerable amount of manipulation is necessary, which injures and bruises the intestines and leads to a fatal issue. The author therefore always makes a small incision into the abdominal cavity, only sufficiently large to admit of the introduction of two fingers, and as soon as the peritoneum is incised introduces a flat sponge so as to prevent the bulging of the intestine. He then passes a finger down by the side of the sponge and explores the abdomen. There is generally no difficulty in feeling the tumor if it is of the ileo-cæcal variety, in the right inguinal region, and when found the finger is carried along the course of the colon until the lowest limit of the tumor is reached. When this has been done the finger and thumb, which is now also introduced, grasps the intestine just below the tumor, and by gradually working along the colon and grasping successive portions of the gut, the intussusception is pushed backwards until it is finally reduced. All this is done entirely within the abdomen and without allowing the escape of a single coil of intestine. When reduction can be accomplished in this way it is done with a minimum amount of risk, but unfortunately it does not always happen that this plan succeeds. If the intussusception has existed for some time, so that adhesions have

formed, or if it is very acute, so that the intussusception is much swollen and congested, it will be found that the invagination cannot be reduced. Under these circumstances it will be necessary to enlarge the abdominal incision and bring the tumor up to the surface of the wound. This must be done with great care and gentleness, and all protrusion of the rest of the intestine must be avoided if possible. When the tumor has been brought into view the intestine is seized with the finger and thumb of the left hand below the invagination, so as to fix it, and then the intussusception is steadily pushed in an upward direction and in this way reduced. On no account should any attempt be made to reduce the invagination by traction on the entering tube.

Occasionally it happens that in cases of intussusception of long standing it is found that the invagination is irreducible; or it may happen that on opening the abdomen the intussusception is found to be in a state of incipient gangrene. What is to be done under these circumstances? There are three plans which may be pursued: 1. To make a longitudinal incision into the intussusciens and draw out the intussuscepted part, cut it off, and suture the intussusceptum and the intussusciens. 2. Resect the invaginated portion of gut and do an end-to-end anastomosis of the two cut ends of the gut. 3. Form an artificial anus.

The first mode of proceeding is best carried out by what is known as Maunsell's method. This consists in making a longitudinal incision in the intussusciens; through this is made to protrude, by gentle traction, the intussusceptum, until its neck appears outside the opening in the intussusciens. The base is then transfixed with two fine straight needles armed with horsehair, and the intussusceptum is amputated a quarter of an inch above the needles, leaving a stump beyond them. The needles are now pushed onwards, so that the sutures pass through the invaginated bowel, and the horsehair is then caught up and divided in the interior of the bowel, and the two ends tied on either side so as to unite the intussusceptum and intussusciens. These ends are left long and used as retractors to prevent the stump slipping back, while rows of sutures are being placed through the two cut surfaces of the bowel and tied. This having been done they are cut off short, the stump is pushed back into the bowel, and the longitudinal slit closed by a Lembert suture.

The second plan consists in excising the invagination and a wedge-shaped piece of the mesentery and approximating and uniting the two cut ends of the bowel. This is the ordinary operation for resection of a portion of the bowel, with which all are familiar. The cut ends after the resection may be joined in several different ways: by the Jobert-Lembert suture, by Maunsell's method, by Senn's plates, by Mayo Robson's or Allingham's bobbin, or by Murphy's button.

Of the third method to which he referred—the making of an artificial anus above the intussusception by opening the gut in this situation and attaching the margins of the opening to the external wound—little allusion is made, because it is not an operation of the present day. It was formerly advocated because it was the most rapid way of completing the operation, but now that we can do an end-to-end anastomosis as rapidly as we can make an artificial anus there seems to be no object in doing what is after all a very imperfect operation, and leaves the patient, if recovery results, in a sadly mutilated and distressing condition.

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#### IODVASAGEN AS A SUBSTITUTE FOR INTERNAL ADMINISTRATION OF SALTS OF IODINE.

LEISTIKOW (*Monatshefte für Praktische Dermatologie*) calls attention to the fact that the mouth administration of the iodides of potassium, sodium or rubidium is attended with marked disadvantages, since it is liable to occasion catarrhal involvement of the mucous membrane of the mouth, nose, stomach, pharynx, and bronchial tubes, or rheumatoid pains, palpitation of the heart, and iodine dermatitis. Under such circumstances it has been the custom to abandon iodides, using mercury instead, or to employ enemata of potassium iodide. This latter method of administration is not one to be recommended, since even if the rectum tolerates the drug the systemic effects are the same as those produced by mouth administration. He has, however, had excellent results in the administration of the drug in the form of iodvasagen inunctions. In all he has employed it in twenty of his private cases. There are two preparations, one containing six, the other ten per cent. of iodine. The former is to be preferred, since it does not produce follicular inflammation. The application is made exactly as is the mercuric inunction—forty-five grains of iodvasagen are daily



rubbed in for ten minutes; the first day the left arm being selected; the second the right arm; the third the breast; the fourth the belly; the fifth the left leg; the sixth the right leg. The rubbings are continued for about three weeks. In four cases the rubbings had to be discontinued because of violent naso-pharyngeal catarrh. The remaining cases showed no reaction whatever, and the specific symptoms rapidly disappeared. From his experience Leistikow draws the conclusion that iodvasagen inunctions are an admirable substitute for the internal administration of the salts of iodine.

#### THE AMBULATORY TREATMENT OF FRACTURES OF THE LEG.

FISKE presents a *résumé* of the ambulatory treatment of fractures of the leg (*Medical News*, Feb. 13, 1897). He calls attention to the fact that after the discussion in Berlin in 1894 of the ambulatory treatment of fractures of the lower extremity considerable interest in the subject was aroused, and although nothing really new or novel was offered, still it has caused a somewhat more extended use of this method of treatment. The ambulatory treatment of leg-fractures seems to be regarded by some as new, and by others as merely the adoption of views that first found expression some thirty years ago. The method of which he speaks in this paper is in use in the Roosevelt Hospital fracture service, and at the time of its introduction by Dr. John McG. Woodbury was new as regards certain principles, namely, the time when the patient was instructed to walk on the injured limb, and the locomotion of the patient without the aid of crutches; and in speaking of the ambulatory treatment of fractures the writer has reference particularly to the large number of cases in the Roosevelt fracture service where the patient was allowed and encouraged to walk at once, without crutches or supporting braces other than the protective splint directly applied to the injured member.

The splint used in these cases is the plaster cast, so applied as to extend from the toe-tips up to and around the tuberosity of the tibia, so that in walking the greater portion of the weight of the body is supported by the circumference of the upper part of the cast. After reduction of any existing deformity, the limb being held in the proper position, the splint is applied as follows: Beginning at the toe-tips and extending to the knee-joint, the

limb is firmly and smoothly bandaged with an ordinary muslin roller; over this is applied the plaster-of-Paris cast. No padding with cotton is made use of, the object being to have the splint exert equal pressure at every point, and so provide absolute fixation. In many cases as soon as the plaster is perfectly hard the patient may walk without any other supporting apparatus. As a rule, however, he is instructed to keep his leg in the horizontal position for twenty-four hours, and if at the end of this time the splint is comfortable and there is no tendency of the toes to swell, he is allowed to walk.

In the treatment of any fracture there are certain important indications to be borne in mind. The surgeon must (1) reduce the deformity; (2) maintain such reduction; (3) fix the fragments and protect the limb; and (4) attend to the general condition of the patient. The last consideration is of especial importance, and emphasizes the desirability of keeping our fracture cases out of bed. It applies equally well to children, to adults, and to old men and women. Fiske cites the case of a man seventy-two years of age suffering from a Pott's fracture, who was up and about on the eighth day after the receipt of the injury, and able to walk without the aid of crutches or cane. These statements apply to all fractures, including even compound fractures, when observation for a few days has shown that no infection exists. In the ambulatory treatment of fractures the general condition of the patient is better maintained, less atrophy of the injured limb takes place, and the stiffness of joints in the neighborhood of the fracture is much less pronounced than in those cases which are confined during convalescence. The questions to be decided in considering the advisability of this method of treatment relate to the selection of cases, the form of apparatus to be used, the time when the patient is first permitted to walk on the splint, the duration of treatment, and the advantages gained and risks incurred.

The author has never seen a fracture of the leg which at some time during the healing process was not suitable for the ambulatory splint. There are many cases where the accompanying edema is excessive, and others where there is a considerable effusion of blood. In these cases the surgeon should apply equable pressure throughout, fix the fragments, raise the leg, and keep the patient in a recumbent position until the effusion is absorbed and the swelling disappears. The walking cast is then to be applied, and the patient is allowed

to be up and about. It is a great advantage to apply the plaster cast immediately after the receipt of the injury, and thus by the firm, even pressure which it exerts to prevent edema or effusion from occurring. In compound fractures the limb should be made thoroughly aseptic, an aseptic dressing applied, and the fragments fixed. If infection does not occur the ambulatory splint is applied later, and the patient then may begin to walk. When there is an extensive injury to soft parts the patient must be kept in the recumbent position, with the leg elevated, but in these cases the ambulatory splint should be applied as soon as the condition of the leg warrants it.

The plaster cast is the only one that has been used in the Roosevelt Hospital fracture service. The ordinary cast varies in thickness from one-eighth to one-fourth of an inch, being thickest at the ankle and at the upper circumference where it grasps the head of the tibia. The plaster-of-Paris used must be of the best quality. At Roosevelt Hospital use is made of two kinds of plaster bandages, one being the ordinary gauze roller impregnated with plaster-of-Paris, the other a stiff starch bandage similarly impregnated. A layer of the common plaster bandage is first applied, and this is followed by a layer of the starch plaster bandage; over this is built the cast with the common plaster-of-Paris bandages. By thoroughly incorporating these bandages into one mass a cast is made which is fairly light and yet possesses some elasticity, due to the starchy element; and so, while it affords absolute fixation, it is not liable to crack or break when the patient walks.

In an uncomplicated case when an immediate application of the cast has been made before the occurrence of edema, the patient is usually allowed to rest for twenty-four or forty-eight hours, and then if the toes are not swollen and the splint is comfortable he begins to walk. At first his gait will be awkward; he may be nervous and afraid to trust his weight on the plaster cast; but with a cane he will soon learn to balance himself, and in a short time he will require no support except that afforded by the splint.

As regards solid bony unions, in the great majority of cases no time is gained by this method of treatment. The after-treatment is considerably shortened, however, as the remaining stiffness is less and more easily relieved. The average length of time the splint has been worn is from twenty-eight to

thirty-five days. In a few cases it has been worn for six weeks, the time depending on the amount of callus thrown out and the completion of consolidation. After the removal of the splint the leg is douched alternately with hot or cold water several times a day, in conjunction with massage, until all stiffness has disappeared.

Some of the advantages of this form of treatment consist in the fact that the patient is kept up and about, less muscular atrophy occurs, there is less stiffness of adjacent joints, the period of after-treatment is considerably shortened, and the general health of the patient is maintained. It must also be remembered that the chances of hypostatic pneumonia occurring in elderly patients are much less if we keep them active. Quite a number of fractures of the leg have been treated in people addicted to the use of alcohol, and the reporter has never seen a case of delirium tremens occur when the ambulant splint was used from the first.

The chief risk is incurred during the application of the cast. To properly apply a cast of this kind requires a skilled operator and a skilled assistant. The importance of skilled assistance and intelligent co-operation is just as great to the surgeon in the reduction of the deformities attendant upon fractures as it is in the reduction of any other bone or joint deformity. The position of the limb, and skill in holding it during the application of the cast, are most important factors in connection with the success of this procedure. In oblique fractures the splint must be worn until the callus has been absorbed and the fragments have united firmly, so that there is no possibility of the upper fragment becoming displaced later by the weight of the body.

In many cases of Pott's fracture the deformity is so extreme and typical that a diagnosis is made at sight. In other cases there is no outward displacement, and very little swelling, and a correct diagnosis is arrived at only after a painstaking examination. The existing deformity is usually corrected easily by flexing the foot to a right angle and making extreme inversion. This position must be maintained until the splint has been applied and the plaster has set. Of the fifty-six cases of Pott's fracture the ambulatory splint was applied in thirty-eight instances during the first twenty-four hours; in eighteen cases the cast was applied from three to twenty-one days after receipt of the injury.

Fractures of the fibula are of very frequent occurrence. A fracture of the shaft fre-

quently shows little or no displacement, and as a rule simply requires the application of the plaster cast. Fractures of the lower end of the fibula frequently show some deformity, and may be accompanied by inward or outward displacement of the foot. A fracture of the lower end of the fibula accompanied by some outward displacement, but where the internal malleolus is intact, should be regarded as an incomplete Pott's fracture, and calls for the same treatment. Fractures of the lower end of the fibula with some inward displacement call for some eversion as well as flexion to a right angle before application of the plaster cast. Out of 110 fractures of the fibula, 101 were of the external malleolus or at the lower third. In 81 cases the ambulatory splint was used from the first. In the remaining cases of this group this treatment was inaugurated from two to twenty-three days from the time of injury, the cases including one compound fracture at the middle third of the bone where the walking splint was applied on the fourteenth day.

Fractures of the tibia are more serious, indicating as they do the receipt of greater violence, and may be accompanied by a considerable degree of shock. Many of the simple fractures do not show much displacement, and as a rule are readily put up in a correct position by having a good deal of extension made in the direction of the limb during the application of the cast. In the twenty-two fractures of the tibia, nine occurred at the lower third and thirteen at the middle third. Sixteen were treated from the first by this method, and six from five to eleven days after receipt of the injury, including one compound fracture on the fifth day.

Fractures of the tibia and fibula require the greatest care in putting them up properly. The surgeon must bear in mind the tendency toward a posterior sagging of the fragments during the application of the cast, and considerable extension must be maintained while this is being done. Of the fourteen cases of fracture of both bones, six were treated from the first by this method, and eight from the sixth to the fourteenth day. In fractures of the middle third of both bones, when there is a tendency toward displacement of the fragments, the splint should include the knee-joint and extend well up on the thigh. On the tenth day the bones will be pretty firmly glued together, callus will have been thrown out, and ossification will be under way. The splint is then removed, and if the

limb is in good order the ambulant splint is applied up to the head of the tibia.

The osteoclasia cases, twenty-four in number, are here considered because many of them have been most perfect examples of the ambulatory treatment of fractures of both bones about the middle third. They also show the value of the immediate application of the plaster cast, applied as it was without padding, and controlling or preventing the occurrence of edema and effusion. It has been common to see these little children after the first week stand and attempt to walk, and after that time they are always encouraged to do so.

The cases of non-union following fracture, eleven in number, which are presented were of no little interest, as several of the patients had been confined to bed for a considerable period. Not one case of fracture treated by the ambulatory method ended in this unfortunate way. The ambulant splint was applied to these cases, and the patients were encouraged to walk; if union did not occur within a reasonable time the fragments were thoroughly needled. This method has been very successful.

Two cases of the Trendelenburg-Hartley operation are considered, as they show the value of the ambulatory splint in compound fractures. On the tenth day as a rule the dressing was removed, the stitches taken out, and a new cast applied, and frequently by the fourteenth day the patient was able to walk very well. This is a very good showing when we bear in mind that a good-sized wedge had been removed from the tibia and a linear osteotomy performed on the fibula.

In 226 fractures of the leg the ambulatory cast was applied during the first twenty-four hours in 159 cases, about seventy per cent. of the total number.

#### *SYPHILITIC DISEASE OF THE HEART-WALL.*

SIDNEY PHILLIPS in *The Lancet* of January 23, 1897, presents an exhaustive paper with the above title, in which he summarizes his conclusions as follows: 1. Syphilis may produce gummata or general fibroid change. 2. Gummata in the left ventricle, except of very small size, are dangerous to life, and when near the apex of the left ventricle may cause sudden death. 3. Gummata in the left ventricle may be suspected if in an individual with syphilitic antecedents there occur signs of derangement of the action of the left ven-

tricle with symptoms of defective or embarrassed action, especially angina pectoris, tachycardia, syncopal or epileptiform attacks; or in the right ventricle when dyspnea otherwise unaccountable occurs. 4. Extreme feebleness of the heart without dilatation, gradually increasing, in young or middle-aged persons who have had syphilis, suggests syphilitic disease on the right side of the heart. 5. Dilatation of either side of the heart in syphilitic persons may result from syphilitic fibrosis. 6. Hypertrophy of the heart without ascertainable cause and without corresponding increase in strength of heart suggests syphilis. 7. Aneurism of the heart-wall may result from syphilitic local lesions, and may be fatal with or without rupturing. 8. It is probable that gummata and fibroid disease in early stages may be relieved or cured by the usual specific treatment, and there is every reason to believe that syphilitic lesions of the heart-wall are not less amenable to treatment in their early stages than syphilitic lesions elsewhere, though no cure can be expected where advanced tissue changes are already produced.

In what has been written attention has been devoted only to syphilitic disease of the heart-wall apart from valve disease. It is certain that the small number of cases given in the table must represent a much larger number of unrecorded fatal cases—cases in which no necropsy was performed, or the fibroid condition was not recognized or reported—and a very greatly larger number of cases of persons who have suffered from syphilitic heart lesions without their producing death. It is therefore certain that syphilitic heart disease is more common than is generally recognized. And its importance is the greater because it affects persons at an earlier age than the usual degenerative heart conditions, and may insidiously advance till it causes sudden death in persons in the prime of life and of apparent health.

There can be little doubt that syphilitic heart affections must affect the administration of anesthetics, more especially as a life-long disease like syphilis is apt to produce local conditions that not infrequently require operative interference. Certainly cases are brought in of death under an anesthetic from fatty disease of the heart, in which the chief evidence of that condition is that the patient died under an anesthetic; and at the moment of writing a case is recorded of death under the administration of the A. C. E. mixture in which "the right ventricle was found dilated,

with fatty infiltration of its walls; the left ventricle was also dilated and there was some fibrosis of its walls." Dr. Kirk found that chloroform, if we may judge from a few cases, is liable to give dangerous results in syphilitic subjects.

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#### DOUBLE OVARIOTOMY AT THIRD MONTH: DELIVERY AT TERM.

PERRIER read before the Académie de Médecine, Paris, in January, notes of a case in which Mouchez, of Sens, removed both ovaries in a woman three months pregnant, for double cystic disease. The patient made a good recovery, and a live child was born at term. Numerous ovariectomies have been performed on pregnant women, but removal of both ovaries during gestation is unusual, not a dozen cases having been reported. Mouchez insists that operation as early as possible is indicated when double cystic disease is diagnosed during pregnancy. The danger of waiting is greater than the danger of operating.—*British Medical Journal*.

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#### SOME RECENT ADVANCES IN THE TREATMENT OF ATROPHIC RHINITIS.

RALPH W. SEISS, in the *Medical News* of November 28, 1896, tells us that among drugs which have given good results as stimulants in the treatment of this disease thymol in his opinion still continues in the first rank; it may be used in watery solution with alcohol and glycerin, but is much better employed dissolved in one of the petroleum oils; albolene, glymol or benzoinol may be used, the thymol being in the proportion of from three to ten grains per ounce. The former strength can be borne by most patients, the latter only by a few in whom tolerance has been established by much previous treatment. Frontal headache, lacrymation, or a severe stinging sensation in the nose should always be regarded as indications for the use of a weaker solution. Numerous drugs may be usefully employed in combination with thymol, among them menthol, pine-needle oil, and eucalyptus, in the strength of from one to three per cent. Sanguinaria and galangal were once much used as stimulants in this disease, but they are exceedingly apt to act as severe irritants, and owing to this and their unpleasant taste have been largely abandoned. Next to thymol, euophen has given the greatest satisfaction in the writer's

hands; it may be used in the form of an ointment as above suggested, or of a dusting-powder in combination with stearate of zinc; or in advanced cases where marked stimulation is required the pure powdered eucalypten may be used. Although slightly less efficient than thymol in the average case, it suits some better, is always less painful, and its use may be regarded as one of the distinct advances in nasal therapeutics. Aristol, iodoform and allied compounds are also a benefit, but have more disadvantages than the one first named. Cinnamon oil has been shown to be the most decidedly antiseptic of the volatile oils, and is particularly valuable in conditions of nasal and pharyngeal sepsis; it may be used in the form of a spray, from three to ten per cent. being added to the ounce of albolene. It appears to be entirely non irritating, produces a grateful feeling in the nose, and its odor is pleasant and not persistent. Whichever oil-spray be employed it is essential that it be thoroughly applied to a perfectly clean mucous membrane, with a suitable apparatus, and with pressure of at least twenty-five pounds per inch.

Stimulation may be as easily overdone in cirrhotic catarrh by drugs as by mechanical means. MacDonald observes that "it is somewhat doubtful whether we are any more justified in stimulating the nasal mucous membrane in atrophic rhinitis than a cirrhotic liver." The warning and the pathological suggestion contained in this sentence are both exceedingly valuable. It cannot too often be reiterated that all violent measures in this disease defeat themselves by causing the very pathological processes which they are intended to cure. Purely surgical measures have but a limited value in cirrhotic catarrh; dead bone must be carefully removed, the minimum of disturbance of surrounding tissues being carefully observed; nasal spurs, or similar obstructions, should not be operated upon; and turbinated tissue should not be removed, except under cases of absolute necessity, the constant tendency to cicatrization and contraction in this disease never being lost sight of. He has seen several cases in which extensive intranasal operations had appeared to light up the atrophic process, and all operations on the turbinated tissues are to be regarded as at least unfortunate necessities. Jonathan Wright has had a similar experience, and forcibly points out how in vascular engorgement cauterization or other intranasal operation does not restore the efficiency of the damaged

muscular apparatus, but by the formation of a scar favors the tendency to fibrosis. The use of skin-grafts as suggested by Laborderie at first sight appears to be one of the most valuable surgical measures that has been brought forward in atrophic rhinitis, the very essential of the disease being the permanent loss of epithelium. Unfortunately the only available grafts which have been suggested are those which are covered by squamous epithelium, such as the intradigital membrane of the frog, whereas what is wanted is a membrane covered with columnar ciliated epithelium. The writer's efforts to graft such a membrane have been total failures, and it is doubtful whether it is possible to obtain this very desirable result. Laborderie claims that nearly half the grafts made from the skin of the frog take effect, and advises the use of from ten to twenty grafts in all advanced ulcerative cases. Even if this admirable result could be obtained by the average operator, a surface covered with pavement-cells and incapable of ridding itself of adherent mucus would be the effect, and the patient would be no better off than before.

The internal treatment of cirrhotic catarrh is not satisfactory. The only drug which can be considered to have the slightest specific effect is iodine. This may be given in the form of iron iodide or of potassium iodide, and certainly appears in some cases to lessen the tendency to inspiration and to exert a beneficial influence on the course of the disease. Tonics are of course needed in many cases, and hygienic measures are naturally of the first importance. Climatic change appears to arrest the disease in a certain proportion of cases, and should be tried when possible, especially after local treatment appears no longer beneficial.

Perhaps the most serious danger of advanced cases of nasal atrophy and suppuration is aural complications. A large proportion of cases have recurrent attacks of acute Eustachian salpingitis, a certain proportion of these going on to suppurative disease of the middle ear and perforation of the membrana tympani. Especially is this the case where the nasal douche, snuffing fluid from the hand, or similar measures in which hydrostatic pressure is brought to bear, have been employed. Colonies of streptococci are thus easily forced into the Eustachian tubes, with the result of setting up suppurative conditions extremely prejudicial to the welfare of the patient. With a view to the prevention

of these complications cleansing methods should always be by some such method as has been advised. Patients should also be carefully warned to avoid forcibly blowing the nose, as in this way the Eustachian tubes are frequently infected. The use of Politzer's inflation is even more dangerous, and should never be employed in cases of cirrhotic catarrh until absolute cleansing and antisepsis of the nasal cavities have been carried out. If suppurative salpingitis is already established the most satisfactory mode of treatment is by means of the Eustachian syringe-catheter. This should be introduced through the nose, and the folds of the tube carefully washed out with a warm, mild, antiseptic formula—boric acid and salt being commonly used by the writer. Treatment should be continued daily for some time, the tympanum being meanwhile carefully let alone, unless already actually diseased. If the middle ear be already involved antiseptic irrigation and, if necessary, an early paracentesis should be performed. Recurrent acute attacks of suppuration almost certainly result sooner or later in thickening of the drum and ankylosis of the ossicles in all neglected cases, and deafness and tinnitus aurium are almost the rule in such.

#### THE TREATMENT OF DIPHTHERIA WITH ANTITOXIN.

Additional testimony is constantly accumulating to establish beyond doubt the utility of antitoxin in the treatment of diphtheria. A recent contribution can be found in the report made by FURTH (*Münchener Medicinische Wochenschrift*, 1896, No. 29, p. 669) of 150 cases thus treated at the medical and surgical clinics of the University of Freiburg. This report is supplementary to a previous report of 100 cases treated in the same way. Of the 150 cases diphtheria bacilli were found in 123. In the remaining 27 the diagnosis was confirmed by subsequent tracheotomy; of these, 13 terminated fatally, and were examined post-mortem. Twelve cases in which diphtheria bacilli were not found were treated with antitoxin, but they are not included in these statistics. In 34 of the 123 cases streptococci also were found, but the examinations were made twenty hours after inoculation—a time thus unfavorable to the development of streptococci. In five children with laryngeal diphtheria, of whom three required tracheotomy and two died, diphtheria bacilli were cultivated from the pharynx, although this

was free from membrane, swelling, or redness. One of these children had measles also, so that the diagnosis was a matter of considerable significance. Of the 150 cases, 122 were uncomplicated and 28 complicated. The complications included measles (16), scarlatina (5), measles and scarlatina (2), measles and typhoid fever (1), and tuberculosis (4). Among the 122 uncomplicated cases there were 12 deaths (9.8 per cent.); tracheotomy was required in 26 cases (21.3 per cent.), with nine deaths (34.6 per cent.). Among the complicated cases there were 11 deaths (39 per cent.); tracheotomy was required in 9 cases (32 per cent.), with 6 deaths (66.6 per cent.). Of the 150 cases death occurred in 23 (15.3 per cent.).

Notwithstanding the coincidence of epidemics of measles and scarlet fever, the mortality was lower than in any previous year. The proportion of cases requiring tracheotomy was also smaller, and the mortality among these also lower. Over and above the complications the disease itself was in many instances of unusual severity. While in former periods the mortality in early life had varied from 60 to 100 per cent., in the present collection of cases there were only three deaths among nineteen children under two years of age, although eight of these cases required tracheotomy. The dose of antitoxin employed was larger than previously. Of the fatal cases two were septic, without involvement of the larynx. Both of these came under observation on the fourth day of the disease, and death took place in sixteen and sixty-eight hours respectively. In six cases death resulted from descending croup; all required tracheotomy. In two cases death was due to diffuse bronchopneumonia, after the local process had terminated. Finally, in two of the cases death resulted from paralysis of the heart on the sixth and forty-first days of observation respectively.—Editorial, *Medical News*, Nov. 28, 1896.

#### PALLIATIVE OPERATION FOR CANCER OF THE PROSTATE.

DESNOS (*L'Union Médicale*, No. 51, 1896) states that intervention is indicated when a patient is tortured by pains radiating to the perineum and the thighs. Pre-rectal incision is made, the prostate is freed from its adhesions, and the greater part of the tumor is resected. As a result of relief of pressure the pain is immediately relieved, and this persists.

APPENDICITIS ABSCESES IN POSITIONS  
REMOVED FROM THE IMMEDIATE  
NEIGHBORHOOD OF THE  
APPENDIX.

PIARD (*Gazette Médicale de Paris*, Dec. 19, 1896) writing on this topic states that a careful study of the literature shows that during the course of appendicitis abscess may form in regions other than those immediately surrounding the appendix; that these abscesses are found in the iliac cellular tissue, the peritoneal cavity, the anterior abdominal wall, the liver, the pleura, the lung, and in various more remote organs, such as the brain, the cord, the kidney, and the spleen. These abscesses are the expression of a diffuse infection either by the medium of the contaminated peritoneum or by the canals of the vessels of the appendix. They are rare and present all the varieties of local inflammation and general septic infection. This formation of secondary abscesses is an added reason for radical operation.

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## Reviews.

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A SYSTEM OF PRACTICAL MEDICINE BY AMERICAN AUTHORS. Edited by Alfred Lee Loomis, M.D., LL.D., and William Gilman Thompson, M.D. Volume I: Infectious Diseases. Pp. 985.  
New York and Philadelphia: Lea Brothers & Co., 1897.

If the first volume of this System, purporting to be an exhaustive study of the diseases included within the domain of practical medicine, may be accepted as an indicator of the scientific value of the System in its entirety, we may well say that the work promises to surpass anything of the kind that has been presented to the profession within recent years. A glance at the list of contributors to this volume is in itself a sufficient guarantee of the value of the various sections, as there is not one who has not by his previous writings placed himself in a position to justify his selection to take part in the construction of such an important work as that now under consideration. While to do justice to each of the authors would be impossible within the limits of this short notice of the work, yet some of the articles are of such importance that they call for special comment.

The volume begins with an article upon malaria by William H. Welch and William S. Thayer, the former treating of the Definition, Synonyms, History and Parasitology of the affection, while the latter assumes the task of describing its Etiology, Pathological Anat-

omy, Symptoms, Diagnosis, Prognosis, and Treatment. This section is one of the most valuable in the volume; it represents in every particular the extent of our present-day knowledge of the disease, and a great deal is done by Dr. Welch in his classification of the malarial parasites to make clear much that has hitherto remained obscure in regard to the individuality of the organisms concerned in the production of the different varieties of the disease. There is undoubtedly still a great deal to be learned concerning the varieties of the *Hamatozoon malariae*, especially in the æstivo-autumnal form of the disease, but the deductions of Dr. Welch are to be welcomed as tending to lessen somewhat the obscurity that surrounds this subject. For the variety, or varieties, of organisms active in the production of the æstivo-autumnal form this writer suggests the name of *Hamatozoon falciparum*, indicating thereby one of its principal characteristics—viz., that it is a crescent-producing organism. Although crescents belong exclusively to the æstivo-autumnal parasites, yet their shape is not always crescentic or falciform, and to designate this parasite Welch prefers the adjective falciparum instead of that of falciforme as suggested by Antolisei and Angelini, which would indicate that the shape is always falciform. We believe that the majority will agree that this suggestion of Dr. Welch's is a happy one.

The section allotted to Dr. Thayer is handled in a thorough and painstaking manner and adds much to the value of the article.

Enteric Fever and Influenza, especially the former, have been assigned to J. C. Wilson. The article upon Enteric Fever is consistent in merit with recent publications of the author upon this subject, and confirms his position as an authority upon this disease. Of especial merit is the writer's description of the pathology and clinical course of the disease. The subdivision upon treatment is also thorough and represents his well known views concerning the management of the affection.

In this connection we cannot refrain from expressing the regret that the Editor has seen fit to interject into this article, as well as several others, what evidently are scraps and bits of his own personal experiences, and which he has supplemented by the insertion of numerous temperature charts that bear no part essential to the description of the disease as essayed by the author of the article. We consider that this serves no useful pur-

pose and tends only to mar the symmetry and evenness of the author's description.

The article on Dysentery, by Hamilton A. West, is an exhaustive study of the disease, the value of which is much enhanced by the insertion of colored plates by Councilman and Lafleur, previously published in the Johns Hopkins Hospital Reports.

The variolous diseases are described by William M. Welch, and the writer's familiarity with these affections is apparent upon every page. A number of reproduced photographs, taken from life, and representing the several types of variola, add greatly to the graphic description in the text.

William Hallock Park has been entrusted with the subject of Diphtheria, and in a comprehensive article of some sixty pages has succeeded in giving a description of the disease that will repay careful scrutiny. His conclusions regarding the diphtheria antitoxin are extremely emphatic and bear out the earlier anticipations as to the curative value of this agent. This is especially gratifying in view of the recent attempts in certain quarters to cast a doubt upon the efficacy of antitoxin treatment and thus to initiate a reaction against its employment.

The subject of Tuberculosis, by Osler, has been handled in such a way as only this distinguished pathologist and clinician is capable of doing. In many respects the general arrangement of the article is similar to that upon the same subject in the writer's *Practice of Medicine*, which will ever hold a place as a classical description of this infection.

It is impossible to do justice, save in an extended review, to the many other articles of great merit contained in this volume. The work is most ably edited, the assignment of the various sections has been made with great judgment, and there is lacking in an extraordinary degree that want of continuity and evenness that constitute such striking defects in many of the "Systems" it has been our duty to review.

The preparation of the Index, the quality of the paper used, as well as the printing, and, in fact, the work of the publisher in general, leave nothing to be desired.

We can warmly recommend the book as a standard work of reference.

HIGH ALTITUDES FOR CONSUMPTIVES. By A. Edgar Tussey, M.D.

Philadelphia: P. Blakiston, Son & Co., 1896.

This is a small octavo volume of less than 150 pages devoted to the subject named in its title-page. The author tells us that he

owes the profession an apology for offering this book to them, which is not a very encouraging statement for the reviewer to find in the first line of his Preface, for a book that is of any value needs no apology. The book is written in an easy, somewhat non-medical style, and is perhaps quite as well suited to lay reading as to medical reading. Now and then through its pages we find a quotation from Emerson or a dash of poetry, and the author breaks into an expression of sentiment in description, such as follows: "The gnarled and storm-developed giant of the open landscape became so in virtue of the necessity which was imposed upon it to maintain its life under numerous difficulties." We presume that the giant referred to is the oak, but as the words we have quoted form the beginning of the paragraph such a conclusion is only a supposition. Any book which tends to familiarize physicians with the real uses of climate in the treatment of disease is of value, but this one is hardly sufficiently exhaustive to be considered as a competent authority to govern the remedial applications of climate.

INJURIES AND DISEASES OF THE EAR: BEING REPRINTS OF PAPERS UPON OTOTOLOGY. By MacLeod Yearsley, M.D.

London: The Rebman Publishing Co., Limited, 1897.

This is a tiny volume of forty pages, containing many references to current literature and dealing with the following practical subjects: Artificial Membrana Tympani, Foreign Bodies in the Ear and Their Treatment, What Not to Do in Diseases of the Ear, The Use of the Pneumatic Aural Speculum, The Care of the Ear in Children, and Aural Reflexes.

Nearly all the material in the volume comes from the pages of *The Medical Times* and *Pediatrics*.

LECTURES ON RENAL AND URINARY DISEASES. By Robert Saundby, M.D. Copiously illustrated. Second Edition.

Philadelphia: W. B. Saunders, 1897.

There is probably no writer in the English language who is better or more favorably known in connection with the subjects dealt with in this volume than is Dr. Saundby, of Birmingham. The volume in reality consists of a reprint of a series of lectures delivered by Dr. Saundby, but to these lectures have now been added in the second edition much valuable information derived from bibliographical and statistical research. The volume as it stands to-day is probably the best brief summary of what we know concerning these



subjects of any that can be obtained. Every important chapter closes with a fairly copious and certainly representative bibliography of the subject which has been discussed, so that the reader who desires to seek further information can readily turn to more exhaustive and complete descriptions of the disease.

Those who are familiar with the interesting summaries published from time to time in the *Birmingham Medical Review* and in other publications to which Dr. Saundby contributes, will be anxious to obtain these lectures in book form.

**A MANUAL OF THE PRACTICE OF MEDICINE PREPARED ESPECIALLY FOR STUDENTS.** By A. A. Stevens, A.M., M.D. Fourth Edition, revised and enlarged. Philadelphia: W. B. Saunders, 1897.

This book, which has just been received from the publisher, is dated according to the Preface of the fourth edition July, 1896. We have already favorably reviewed in earlier issues of the *THERAPEUTIC GAZETTE* previous editions of this little manual. In this edition we are told by the author that he has rewritten several of the articles and also that two Italian physicians are translating the volume into their language. To those students who desire a very succinct and brief account of practical medicine, we can cordially recommend this little handbook.

**A MANUAL OF PHYSIOLOGY WITH PRACTICAL EXERCISES.** By G. N. Stewart, M.A., D.Sc., M.D. Philadelphia: W. B. Saunders, 1897.

That a good, concise, and fairly practical book on Physiology was needed in the medical literature of the day is shown by the cordial reception which has been accorded to the English edition of Dr. Stewart's book. The present volume is an American reprint of the same, and while it bears the date of 1897 it contains a Preface dated September, 1895, which is the date of the Preface in the English version. Dr. Stewart is well known as one of the younger physiologists who has already done good work in this important branch of medical science, and his success in teaching in Cleveland, Ohio, has proved that he has the ability of transmitting his knowledge to the student who desires to receive it. This ability shows itself upon almost every page of the volume before us, which is copiously illustrated and contains a number of colored plates which are more than usually good. There are also many illustrations devoted to the elucidation of descriptions of apparatus and records obtained from such apparatus, and the proper amount of infor-

mation is given to permit the volume to be used as a laboratory manual as well as a text-book. We doubt not that Dr. Stewart's book will continue to be considered one of the most popular text-books of the day.

**BRAITHWAITE'S RETROSPECT OF MEDICINE.** Volume CXIV, July to December, 1896.

This volume of Braithwaite's *Retrospect* closely resembles all previous volumes of this well known publication, which seeks to provide the busy practitioner with a summary of current medical literature. Those who have already found the usefulness of the publication will be glad to know that the one hundred and fourteenth volume has been issued.

**A PICTORIAL ATLAS OF SKIN DISEASES AND SYPHILITIC AFFECTIONS.** In Photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris. With Explanatory Woodcuts and Text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, and L. Jacquet. Edited and Annotated by J. J. Pringle, M.B., F.R.C.P. Part VII.

London: The Rebman Publishing Co. Philadelphia: W. B. Saunders, 1897.

The photo-lithochromes (No. 7) in this series represent Eruption from Bromide of Potassium; Hypertrophic Papular Syphilides; Rupial and Early Gangrenous Syphilides, an illustration of particular beauty and value; of Gangrenous Tubercular Syphilide and Gangrenous Gumma.

The text is devoted not only to the diagnosis and clinical features of these eruptions, but takes up the subject of treatment in a thoroughly practical way.

**ROENTGEN RAYS AND THE PHENOMENA OF THE ANODE AND CATHODE: PRINCIPLES, APPLICATIONS, AND THEORIES.** By Edward P. Thompson, M.E., E.E. With a concluding chapter by Prof. William A. Anthony. Profusely illustrated.

New York: D. Van Ostend, 1896.

The title of this book describes its contents exactly, and to those who desire to become *au fait* with everything in connection with this most interesting subject it will convey, as perhaps does no other work in the English language, accurate, scientific, and yet readily understood statements in regard to the production of the Roentgen ray and the means for its application and employment. The latter part of the book is quite copiously illustrated by many skiagraphs dealing with medical and surgical topics. Altogether it contains nearly 200 pages, and its author is to be congratulated upon the production of so useful a manual concerning so interesting a topic.

**SYRINGOMYELIA.** An Essay to which was awarded the Alvarenga Prize of the College of Physicians of Philadelphia for the year 1895. By Guy Hinsdale, M.D.

This is a brief brochure of over seventy pages, including the bibliography, upon that rather rare form of nervous disease which gives it its title. It is quite freely illustrated and its text provides us with one of the best accounts of the affection which can be found in literature. Certainly the honor of winning the Alvarenga Prize has been increased rather than decreased by its award to this evidence of literary industry. No less than 388 references to the literature of the subject close the volume.

**ELEMENTARY BANDAGING AND SURGICAL DRESSING: WITH DIRECTIONS CONCERNING THE IMMEDIATE TREATMENT OF CASES OF EMERGENCY.** For the Use of Dressers and Nurses. By Walter Pye, F.R.C.S. Revised and in part rewritten by G. Bellingham Smith, F.R.C.S. Seventh Edition. Philadelphia: W. B. Saunders, 1897.

This book, as stated by Pye, is practically a reissue of the portions of his well known work on Surgical Handicraft which deal with bandaging, splinting, and the first treatment of cases of emergency. Thus it is a reprint, but so carefully selected, and issued in such a convenient form (indeed the book is small enough to be put in the waistcoat pocket) that it will no doubt be found serviceable to students, internes, and nurses.

There are many practical suggestions, such, for instance, as is found in Walker's method of applying a plaster jacket. This is as follows:

"The jacket may be put on while the patient is lying down flat, or better still, while extended on an inclined plane, with the hands raised backwards above the head and grasping a bar. This is known as 'Walker's Method.' To carry out this plan it is necessary to retard the setting of the plaster. This is effected by soaking the muslin bandages, into the interstices of which the plaster has been rubbed in the ordinary way, in a mixture of mucilage and water (about one ounce to a pint of water). When the roller bandages have been thoroughly moistened they are cut into lengths sufficient to go around the patient and overlap some inches in front. The several lengths are then arranged on the inclined plane so as to form a series of overlapping strips, in sufficient number to secure a three- or four-fold thickness everywhere.

"The cingle having been put on, and the pad adjusted, the patient is placed in the extended position over the strips of bandage,

which are then taken up one by one, and their ends crossed over the front of the chest and abdomen, like one loop and a bit of a figure-of-eight. If they have been properly placed it will be found that in this manner a well-fitting jacket of a somewhat hour-glass shape will be made, expanding above for the upper part of the thorax, and below to take hold of the pelvis.

"The patient should be allowed to lie still until the case sets, which it will do in three or four hours."

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.

Another orator has paid his tithe of homage to the memory of John Hunter: this year the mantle of Paget, Savory and other great men who have gone before, descended on Mr. Christopher Heath, lately President of the Royal College of Surgeons. The tendency of past orators has been to depict Hunter as a great anatomist, a learned physiologist, or a profound pathologist; but this year our portrait is of Hunter the Surgeon. In science, as in other spheres of action, coming events cast their shadows before them, and we are not surprised to find that Hunter foreshadowed so many of the giant strides of modern surgery. Thus in his lecture on "Injuries to the Head," Hunter showed himself to be far in advance of his contemporaries, with whom trephining the skull was a matter of routine. He writes: "In cases of fissure of the skull only, it may admit of dispute whether we are always to trepan. If there is no symptom of an injured brain, certainly it will not be necessary. It may not be necessary even when attended with symptoms of an injured brain, for the injury may only be from the concussion, and we never trepan for concussion." And again, in speaking of fractured patella, he says: "Before the year 1750 it was the practice to endeavor to bring the broken ends of the bones as near together as possible, with little or no motion allowed; but after that a fashion arose (for we have fashions in surgery as in everything else, arising perhaps from a person happening to do well who had not been treated in the old way) of letting the parts separate, and of not forbidding motion so strictly. But now caprice has, I believe, had its day, and

we are taught by reason and experience that the parts when cured should be as nearly as possible in their natural position." There is, however, a less modern flavor in the candor with which Hunter remarked of a patient, who died of fungus cerebri, after opening the dura mater: "He died, and I think it is probable I killed him by opening the dura mater." To Hunter too belongs the operation for cure of aneurism by applying a ligature at a distance from the sac, and in the museum of the College of Surgeons is the specimen of this historical case, obtained at the patient's death a year subsequently. The "Treatise on Venereal Diseases," though containing much of permanent value, was much marred by the essential misconception of the identity of the virus of syphilis and gonorrhea—a belief derived from experimental inoculation of himself with gonorrheal matter, accidentally contaminated with the discharge of a chancre. From the chapters on the "Supposed Consequences of Gonorrhea," Mr. Heath culls some very happy sentences. In describing the discharge of the natural mucus of the glands of the urethra Hunter writes: "The small glands of the urethra and Cowper's glands secrete a slimy mucus similar to the white of an egg, not coagulated. This seldom appears externally or flows from the urethra, but during the indulgence of lascivious thoughts, and is seldom or never attended to except by those who are either under apprehension of a gonorrhea coming on, or imagine the last infection is not gone off entirely, and are therefore kept in constant terror by this natural discharge." And in speaking of the discharge of the secretions of the prostate gland and vesiculæ seminales, Hunter says: "It is a discharge of mucus by the urethra, which generally comes away with the last drops of urine, especially if the bladder is irritable, and still more at the time of being at stool, particularly if the patient be constipated, for under such circumstances the straining or action of the muscles of these parts is more violent. It has generally been supposed that this discharge is semen, and the disease is called a seminal weakness; but it appears from many experiments and observations that the discharge is undoubtedly not semen." Mr. Heath tells us that he values this common sense teaching so highly that for years he has kept this page in Hunter's works doubled down, in order that he may read out an authoritative statement to those miserable persons who consult the surgeon from time to time for so-called "spermatorrhea."

The orator's valediction struck a note of timely foreboding: "Gentlemen," he said, "I cannot but view the future of this College with some anxiety. The great corporation is, I fear, on the high road to become something very unlike the Royal College of Surgeons of England, which has existed now for nearly a hundred years. Hitherto it has been regarded as the home of surgical science, and its funds have been devoted to the advance of the art of surgery by providing unrivaled opportunities for study in its museum and library. This College will, in my opinion, lose professional prestige and fall in public estimation if its funds should ever be diverted from these legitimate purposes in order to support the interests of individual members of the profession, however worthy in themselves. It will be a melancholy day for British surgery if ever this Royal College should become a gigantic protection society to fight the puny battles of its members, who may happen to come into collision with each other or with the public. It is to the Council, and to the Fellows who elect the Council, that we must look for the maintenance of that high professional position which the College has hitherto occupied, and for the furtherance of the art and science of surgery—*qua pro sunt omnibus artes.*"

At the Clinical Society of London Mr. Stephen Paget read a most interesting paper on "Voracious Hunger and Thirst after Injury or Disease of the Brain." He had collected notes of fourteen cases pointing to the existence of special centres of hunger and thirst close to the centres of speech, probably in the anterior extremity of the temporo-sphenoidal lobe. A short account was given of each case, including one in his own practice. Four of the patients had received a severe blow on the forehead; two had been struck on the side of the head; two had fallen heavily on the back of the head; two had presented signs of a fracture of the base; and one had fallen from a height, coming down in a sitting posture. In addition to these eleven cases of injury there were three cases of disease: one had abscess of the left temporo-sphenoidal lobe, one had a suppurating cyst in the right temporo-sphenoidal lobe; and one had embolism of the left side of the brain. Eight of the fourteen patients suffered from voracious appetite for solid food, without much thirst; three suffered both thirst and hunger; three had intense thirst without hunger. In none of them was

the primary injury or disease fatal. It was therefore pretty clear that the supposed centres for hunger and thirst were not situated in the immediate neighborhood of the so-called vital centres. Three of the patients had well marked aphasia; it was therefore probable that these centres lay close to the centre of speech, and not improbably connected with the olfactory centre, which some physiologists have located at the anterior extremity of the temporo-sphenoidal lobe. This hunger and thirst was of a degree far in excess of the normal hearty appetite of convalescence, and was not in any of these cases secondary to a traumatic diabetes. The therapeutic indication in this condition was extremely simple, for the patients suffered no obvious digestive disturbance in consequence of the enormous consumption of food and liquid. The voracious appetite lasted, as a rule, for many weeks or months, and then came to an end spontaneously.

Mr. Paget's paper suggests a number of interesting questions: We must admit that the evidence he adduces of localization is considerable; in nearly all the cases the main stress of the injury would have been on the temporo-sphenoidal lobe; but then we should expect the symptom to be present more often in the numerous cases of cerebral disease that affect this region directly or indirectly. Assuming, however, such a localization, what is the channel of connection with the stomach? Seemingly the gastric branches of the vagus. Such an affection comes quite into line with the gastric crises of locomotor ataxia, which Buzzard regards as evidence of a descending degeneration of the vagus, analogous to the optic neuritis of organic cerebral disease. If, however, we are to accept the occasional occurrence of aphasia as evidence of the adjacency of the speech centre, is it not a little remarkable that conversely hunger and thirst are so rarely associated with the many multiple cases of aphasia? On the other hand the condition may be the outcome of a general cerebral disturbance: thus voracity is a common symptom after an epileptic fit, but soon passes off; and thirst is still more common, both before and after the fit. Many epileptics, as the fit passes off, will swallow glass after glass of water in furious haste. In the discussion following the paper Dr. Colman suggested a happy parallelism to the cases of loss of memory, which after a fit lasts only a short time, but for much longer periods after a severe injury.

Dr. Stoker has been scandalizing the con-

servative propensities of the various medical societies by communications which at any rate have the merit of startling originality. He had observed that wounds containing staphylococci healed much more readily than those from which these organisms were absent, under treatment with oxygen. With the courage of experience—or of ignorance, as the elect would have it—he introduced these organisms into certain dilatory ulcers, and claims to have greatly accelerated their healing. Until more exact evidence, beyond all suspicion of experimental error, is to hand we must needs suspend judgment on the matter. If, on the other hand, we accept the proposition, the corollary is obvious, that we have been too indiscriminate in our antiseptic warfare by sparing neither harmful nor harmless microbes; or, indeed, we must postulate the beneficence of some that act as scavengers of organic debris, and flourish in a highly oxygenated atmosphere. The cases that were brought before the Harveian Society may be studied in detail to advantage, as they suggest not a few openings for error.

CASE I.—Mrs. B., aged fifty-one; had suffered from ulcerated legs for seven years; the ulcers commenced with an abrasion of the skin. She was first treated at the Chelsea Dispensary for three years with lotions, ointments and internal medicines. She lay up at home for three years while using these remedies. Afterwards she received similar treatment at St. George's Hospital for three or four years, but the ulcers never healed. She came into the Oxygen Home on December 28, 1896, with three large and two small ulcers. Under treatment with equal parts of oxygen and purified air, two of the large ulcers healed in eleven days, the other three partially. Accordingly these were inoculated with staphylococci, and by February 4 two were quite healed and one nearly so.

CASE II.—Mrs. H., aged thirty-eight; admitted to the Oxygen Home October 21, 1896. At Christmas, 1894, she was treated at St. George's Hospital for one small ulcer, which healed, but broke down again in July, 1895. In January, 1896, was treated at University College Hospital with improvement, but still the ulcer did not heal. In April, 1896, she returned to St. George's, and had lain up at home till admission. She was treated with equal parts of oxygen and air, and on November 23 the two small ulcers were quite healed. On December 21 a large ulcer was healed but for two small foci, which on January 22, 25, 26 and 27 were injected with

staphylococci, and by January 29 these were completely healed.

To these cases is appended a Bacteriological report by Messrs. Stoker and Dariey:

CASE I.—Before commencing the oxygen a cultivation was taken from the ulcer on agar-agar; after incubation it was found to contain a pure growth of staphylococcus *pyogenes citreus*.

Out of upwards of sixty cases examined, this was the first and only one in which a pure growth of staphylococcus was found previous to the commencement of oxygen treatment.

CASE II.—A cultivation taken before treatment with oxygen was found to contain bacillus *fluorescens* and staphylococcus *pyogenes albus*; the former disappeared after a few weeks.

As Dr. Stoker remarks, the main gist of these cases is to show the important relation between oxygen and staphylococci in promoting healing, but we cannot accept his conclusions as irreproachable. The central point is that whereas healing was only partial under treatment with oxygen alone, complete healing was induced on the accession of staphylococci; and if this were the whole case we should have to admit the corollary that there is some important interrelation of oxygen and staphylococci in promoting the healing process. In the first place, so far as the record shows, there was no absolute arrest of healing, but merely a retardation of the process, such as is usual at some period in the healing of most ulcers; then again there is no evidence by bacteriological testing of any activity of the staphylococci after inoculation. We would suggest that the better method would be to treat simultaneously two series of ulcers in which no tendency to healing is obvious, the one with oxygen alone, the other with oxygen and staphylococci combined, and to compare the results. Again, though we are convinced from inspection of cases that treatment with oxygen is most beneficial, we necessarily get a most inaccurate estimate of its value by contrasting cases so treated and in bed with cases treated by other methods but without perfect rest. Any one who knows the homes of the poor is well aware of the futility of "lying up at home." We would wish to see two series of cases treated side by side under the same conditions of rest and general hygiene—the one treated with oxygen, the other without. Our own experience of Unna's method is so highly satisfactory that we should hesi-

tate to recommend any other method to the family bread-winner. We have no wish to carp at Dr. Stoker's statements, but we should like more unimpeachable evidence.

In the *Indian Medical Lancet* Surgeon-Captain Roberts suggests the *rationale* of the domestic remedies for hiccough, which will probably not have struck many of our readers; nor will many be aware that these remedies were in use in the time of Plato. Hiccough is inspiratory spasm of the diaphragm, and in many diseases, particularly of the lungs and abdominal viscera, is a symptom of great prognostic import. The vagus by its laryngeal branches and the fifth nerves are the afferent nerves most intimately associated with respiration, while the glosso-pharyngeal exerts an inhibitory influence at the commencement of deglutition; hence the efficacy of such remedies as sipping a glass of water, eating a lump of sugar, and gargling; reflex inhibition of this kind is certainly more effectual than volitional, though sometimes simply holding the breath is sufficient to cut short an attack of hiccough.

In a recent article in the *National Review* Dr. Shadwell again conjures up the hydra-headed spectre of hidden disease to terrorize the lady cyclist. This time there is no talk of spinal concussion or curvature, none of irritable and dilated heart, but the familiar phantom of "nervous exhaustion" stalks abroad, seeking whom he may devour. The "*vera causa*," he writes, "seems to be in the extreme instability of the two-wheeled machine, which can never be left to itself for a single moment without dismounting; to ride it safely entails a double strain—a general one on the nerves and a particular one on the balancing centre." Now without following the writer into his minute discrimination between the fatigue of muscular effort and that of nerve exhaustion, which in cycling we cannot dissociate or distinguish, we would urge a common-sense view of the case. No doubt harm has accrued to some who have kept within the bounds of absolute excess, but we cannot for that reason admit that due moderation was observed; each rider must be a law to him or herself, and one cannot set up an absolute standard. But so universal is the consensus of opinion in favor of its general benefit, that we do not grudge these few hostages to the well-being of the majority. Cycling has often driven out the evil spirit of mental lassitude, which is the first stone in the building up of functional nervous disorder. No doubt the absorption of the fac-

ulties has done much to render the fatigue effects illusory, but none the less there comes a to-morrow of reckoning. Appetite has always seemed to us to be as sure a gauge as any of individual capacity, so accurately does the stomach reflect the general muscle state. To some there comes a fierce craving for food, and to these, as Homer to his heroes, we would award chinees of beef; but with others the stomach stubbornly revolts from food, and these have surely exceeded.

The ravages of venereal diseases among the British troops in India have at last gained the ear of the Government; and the reason seems to be that in the absence of preventive measures it has become a question of importance to the safety and integrity of the Empire, by its influence on the efficiency of the army in India. The statistics of the Principal Medical Officer's Report show that the total number invalidated for venereal diseases in a single year was 1663, so that nearly one-fifth of the whole strength were sent home on this account. The Secretary of State for India has appointed a Departmental Committee, under the presidency of Lord Onslow, to inquire into and report on the actual conditions. We are glad to see that the Indian Army Medical Staff is adequately represented on the Committee, as they alone have intimate knowledge of the extent of the evil. At a recent meeting of the Royal United Service Institution, Major-General Dashwood, in a statistical paper, brought the whole matter in all its bearings into public attention. Even if Government interference should fail to bring about a re-enactment of the Contagious Disease Acts, we may at least hope that the irrational and illogical distinction from the preventive measures applied to other infectious diseases may be removed. Meantime, at the Royal College of Physicians of London, it was resolved on the motion of Sir Dyce Duckworth, seconded by Sir William Priestley, M. P., "That a committee be appointed to advise the College on the desirability of making a formal declaration of opinion to the Government in favor of the re-enactment of the Contagious Diseases Acts in India, or of some such modification of them as may prevent the spread of contagious diseases;" and an influential body of Fellows was nominated by the President to serve on the committee.

The question of medical defense is still sorely exercising a certain section of the profession. For our own part we are disposed to dislike any measures of protection of a special char-

acter, as not likely to dignify the existing relation of doctor and patient; nor does the greater liability of the medical profession to false charges seem to us an adequate reason for a specially organized system of medical defense. If, however, such is destined to exist, there should clearly be no attempt to cast the burden of its working on any composite body, such as the General Medical Council or the British Medical Association—rather it should be of the nature of a purely private speculation, in no way involving the support of those who do not seek to participate in its privileges. The present state of affairs is due to the existence of two chief societies side by side, to the mutual disadvantage of either, crippling the efficiency each of the other, and rendering their common object nugatory. The recent suit of Cullingworth *vs.* Beattie has shown that medical men are not slow to succor their brethren in the hour of honorable distress.

The initial energy of the Hospital Reform Association has not yet blossomed out into even a hypothetical solution of the many difficulties that surround the matter. A close inquiry, under the auspices of the Charity Organization Society, into the social circumstances of those attending the out-patient department of one of our largest hospitals has led to the rather unexpected conclusion that only an infinitesimal fraction of this number can be said to be in a position to pay for private medical attendance. We are of course aware that the proportion at the special hospitals would in the nature of things be very much higher, but equally we believe that this finding would hold good for most of the large general hospitals. Nor can we blame this more well-to-do section for seeking at the special hospitals such advice as they cannot afford at the consulting-room of the specialist, and which it would be absurd to demand of the general practitioner with the many duties already resting on him. To meet such cases the hospitals should rather formulate some graduated scale of payment to be assessed in each case by a hospital almoner. It has also transpired that a very large proportion of out-patients require no medicine at all, but merely food and home care. It is true that the Pharmacopœia contains some excellent samples of the former commodity, but we venture to think that the necessary combination would be more effectively administered by referring such cases to the Poor-law. This would go far to reduce the unmanageable numbers, with which at

present our out-patient departments are hampered. Another less easily remediable problem is that the better and more expeditiously relief is administered to applicants, the larger becomes the demand on the work of that hospital, and so it results that the better the work is done the more are the workers hampered in its efficient performance—and this for the most part by the merest trivialities of accident and disease.

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*PARIS LETTER.*

By A. R. TURNER, M.D. (PARIS).

During the next few days there will be tried in one of the Paris criminal courts a case which has already caused much comment in the medical and lay papers of this city.

A young woman, employed in one of the best known shops of Paris, died some days after the operation of curetting, and it was charged that the physician who performed the operation, as well as the physician who had sent the patient to him, were aware that she was pregnant, and that the operation was in fact a criminal abortion. What more than anything led people to this opinion was the fact that the paramour of the woman, an official of one of the towns situated just outside of Paris, shot himself on receiving a telegram containing the words "All is known."

It is charged that in reality the physician performing the operation, and who was at the head of a gynecological clinic, had more than once performed such operations. This event caused the greater interest from the fact that though comparatively young he occupied in the scientific world a certain position which, though not of the first place, was yet of some importance.

According to French custom the two physicians were arrested and kept in prison for some months. Only recently have they been allowed to communicate with their counsel. It is said that about 150 witnesses will be called.

One of the results of this scandal has been that two Syndicates or Associations of Physicians in Paris have been quarreling ever since. One calls itself "*Le Syndicat des Médecins de Paris*," the other "*Le Syndicat des Médecins de Paris et de la Seine*." One of the two accused physicians belongs to both of the Syndicates, the other to one only. One of the Syndicates passed a motion in which they said that their past knowl-

edge of their colleague inclined them to look upon him as innocent. Ever since then the two Syndicates have been requesting the public generally not to confound them, a thing which it is rather difficult not to do, on account of the similarity of their titles.

The interest in this case does not, however, depend upon the event itself so much as upon the current of public opinion which it reveals. Ever since the publication of the book "*Les Morticoles*," written by Leon Daùdet, a son of Alphonse Daùdet, the medical man has played in French literature, and above all in French contemporary drama, the rôle of villain, or at least what might be called a most unsympathetic part.

In a recent French play, "*L'Évasion*," out of several medical characters one only, the old country doctor, is not a fool or a scoundrel, two especially of the others being, one an old and highly placed physician who confesses in a moment of weakness that science is nothing, and another a younger man who seduces his female patients.

In all nations, and above all in France, public opinion moves from one extreme to another, not suddenly, however, but during a period of years; and it may be said that the rôle played by the physician in French literature is the exact opposite of the part given to him some fifty years ago, a good example of which may be found in Balzac's "*Le médecin de Campagne*."

An interesting article might indeed be written on the physician in the literature of all nations. Taking it altogether it would seem to me that he has either been drawn as a superhuman being, whose object in the book is to give expression to those reflections and sentiments which the author would in some cases express for himself, or else that he plays a comic rôle. Certainly the latter is what he does in certain of Thackeray's works, in "*Pendennis*" for instance, or even in the part of Dr. Filmer, if I remember the name correctly, in "*The Story of Philip*."

One modern author, Walter Besant, is rather fond of introducing medical men into his books; they usually, however, leave their shop outside, and indeed but one of them really lives—that is Mr. Brinjes, in "*The World Went Very Well Then*." With him we all sympathize, I think, notwithstanding the Devil which dwells in him; and by his side the other characters of the work are colorless.

Various forms of local tuberculosis have been treated by Lannelongue's sclerogenous

method, namely, by the introduction around the focus of disease of a few drops of a ten-per-cent. solution of zinc chloride.

Recently Dr. Lannelongue has tried it in an entirely different affection, namely, in the treatment of infantile hernia. The patient was a boy of fourteen years. After shaving and cleaning the region the hernia is to be reduced and carefully maintained so by an assistant, who compresses with his finger the internal inguinal orifice so as to cut off the peritoneal cavity from communication with the remainder of the canal. Next all the various elements of the spermatic cord should be gathered together. The cord being held with the left hand the right should plunge the needle of a hypodermic syringe filled with the chloride of zinc perpendicularly to the pubis and until the very bone is reached, when the point of the needle is turned under the posterior surface of the cord, and five drops of the solution are expelled into the fibrous tissue there situated.

Altogether eight or ten injections, or thirty to forty drops of the solution, are made into the fibrous tissue surrounding the cord. Some of the injections should be made at a lower or higher level than the others. An antiseptic dressing should be applied, and the child kept in bed eight days.

According to Dr. Lannelongue this operation is in nowise dangerous when carefully performed.

It has been claimed by a Russian military surgeon, N. V. Guéorguievsky, that the application of compresses dipped in chemically pure solution of bicarbonate of soda, of the strength of two per cent., arrests the production of pus and stops all inflammation much more rapidly than does the use of any of the antiseptic agents usually employed, such as carbolic acid or iodoform, etc. In several cases when all suppuration had ceased through the effect of the solution, the use of an iodoform ointment has caused it to appear once more.

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## Notes and Queries.

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### *THE WEATHER BUREAU IN ITS RELATION TO MEDICAL CLIMATOLOGY.*

The following resolutions were adopted by the Medical Society of Bernalillo County, New Mexico, at the meeting held January 15, 1897, and as they deal with an important climato-therapeutic subject we are glad to print them:

*Whereas*, This Society is impressed with a sense of the supreme value of the methods and work of the Weather Bureau of the United States in their relation to the science of Medical Climatology, as illustrated in the series of statistical tables published in Volume I, Annual Report for 1885, of the Signal Service (now Weather Bureau); said tables embracing all the data bearing upon nearly every meteorological feature necessary to a complete determination of the climate of many points scattered over the whole of the United States, so far as these data had accumulated up to the date of that Report; and

*Whereas*, The value of these tables would be greatly enhanced by working into them the data accumulated in the course of the eleven years which have elapsed since 1885, and a volume of immense value to the medical profession might be produced by appending to these tables, brought up to date, some account of the topography, geological formation, natural drainage, nature and source of water supply, vicinity of mineral springs, etc., etc., at each station where observations are taken; therefore

*Be it Resolved*, By the Medical Society of Bernalillo County, New Mexico, that the Chief of the Weather Bureau of the United States be respectfully requested to take this matter into consideration; that the American Climatological Association be requested to co-operate with the Weather Bureau through a committee appointed for that purpose, if mutually agreeable; that copies of these resolutions be transmitted to the Chief of the Weather Bureau, to the Surgeons-General of the Army, Navy, and Marine Hospital Service, to at least three of the principal medical journals of the United States, to the American Public Health Association and the American Medical Association, and to every State Medical Association in the United States, and their co-operation invited.

### *INTUSSUSCEPTION IN CHILDREN.*

In the hope of obtaining statistics which may prove of value in determining the true mortality of intussusception in children, the undersigned has endeavored to make a collection of unpublished cases, and with this end in view has sent several hundred letters to physicians in general practice. The greater number of these have had no experience. It is in the hope that some of the readers of the GAZETTE may have seen such cases that the appended questions are published. Answers will be very greatly appreciated by Dr. Edward Martin, 415 South Fifteenth Street, Philadelphia.

Seen by Dr..... In personal practice..... In consultation..... Age of patients..... Cause of intussusception (polyp?)..... Symptoms—Tumor..... Passage of bloody mucus..... Tenesmus..... Vomiting..... Intense pain..... Treatment—Medical..... Result..... Mechanical (injection of air..... water..... massage.....) Result..... Period elapsing from first symptom to mechanical treatment..... Treatment—Operative (Disinvagination through abdominal opening.....) Result..... Resection..... Result..... Seat of invagination..... Amount of bowel resected..... Method of joining intestines..... Period elapsing from the first symptom to the time of operation..... Results of autopsies.....

Further details not covered by the above headings will be gladly received, such as recovery with passage of slough, etc.



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## Original Communications.

### THE CUMULATIVE ACTION OF DIGI- TALIS.\*

BY H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of  
Philadelphia.

The most important point in beginning this article is to consider what is meant by the term "cumulative action of digitalis." By this term I mean the more or less sudden development of an irregular action of the heart in a person who has taken large and

repeated doses of digitalis, with a correspond-  
ing irregular, hobbling pulse and, if the effects  
are severe, vomiting, feebleness, and a sensa-  
tion of cardiac distress as additional symp-  
toms. These symptoms may come on while  
the patient is lying still, but are more fre-  
quently initiated by the patient sitting up-  
right or moving in such a way as to increase  
the work of the heart and vaso-motor system.  
When bodily quiet has been maintained by  
rest in bed for some days or hours the onset  
is usually sudden, but when the patient has  
kept on his feet the symptoms may come on  
more gradually. These symptoms are ap-  
parently due to the fact that the drug is  
given in such amounts and so frequently that  
it accumulates in the body; or if the drug

\* A paper read before the Association of American  
Physicians at the Congress of Physicians and Surgeons,  
Washington, May, 1897.

itself does not accumulate its effects accumulate, so that before the effect produced by one dose has passed by the effect of another is superimposed upon it. In the belief that digitalis has this cumulative effect the writer of course does not stand alone, for nearly all authors speak of it, and many of the profession believe in the possibility of its occurrence even if they have not met with it. Thus, Soullier (*Traité de Thérapeutique et de Pharm.*, Paris, 1895) says that digitalis is one of those drugs which possess the curious phenomena of accumulative effect, which necessitates the suspension of the remedy for eight days after it has been given eight days, and quotes Lepine as never using it on consecutive days. Waring in his "Therapeutics" says that digitalis when given in small, long-continued doses is apt to accumulate in the system and suddenly induce poisonous and even fatal effects. On the other hand, there seems to be some doubt as to whether we all have exactly the same idea of what we mean by this term, and some authors—and they are not a few—assert that a cumulative action does not occur. Thus Beaumont Small, in the "Reference Handbook of Medical Science," supplementary volume, expresses this idea, and Bartholow "agrees in opinion with those who hold that digitalis is not a cumulative poison in the sense in which this term was formerly used." On the other hand he admits that "doses of digitalis frequently repeated one after another, so that the effect of one is added to those before given, will certainly produce toxic symptoms," as will all other poisons used as medicines.

It seems to me that this is to a great extent exactly what happens in those cases in which what I call "cumulative effects" take place, and I do not believe that digitalis possesses any uncanny cumulative power of an extraordinary kind. On the other hand I do believe, not only from experience but from its known action given in small doses in all cases, that the ground for the assertion that digitalis is peculiarly apt to cause a cumulative result is very firm. In the administration of remedies we are not sufficiently governed by the speed of their absorption and elimination, and particularly is this true of digitalis. Again, we are apt to overlook the fact that certain drugs produce an effect which is prolonged. This is also particularly true of digitalis, for not only does its influence last for several hours but often for several days. Again, there are certain states of

the body which hinder absorption for a time and delay elimination, and also prevent this drug from acting while in the blood; as gastric atony in the first case, renal spasm or disease in the second, and fever in the third. In other words, while it is true that any drug has a cumulative effect when given too often, it is also true that digitalis can more readily be given too often than many other drugs. Again, the very physiological effect of digitalis tends to make it accumulate, for as Brunton points out, digitalin when taken for several days causes a decrease in the flow of urine, and this is due to spasm of the renal blood-vessels, which may be so great as to cause suppression of urine.

It therefore stands to reason that the frequent repetition of full doses must lead to its accumulation in the body, for the supply is greater than the amount eliminated. Such an accumulation with the production of a profound effect is met with when any drug which is slowly eliminated is given frequently in full doses; as for example in the case of bromide of potassium, where with each succeeding day and dose, the dose being the same, the sedative effects are more marked. Waring asserts that the bromides are sometimes taken in large doses for several days without effect, and thus a cumulative effect comes on.

In this case, however, the effects are gradually increased and the physician can measure the depth of the influence of the drug more accurately than when digitalis is given, for a peculiarity of the overaction of digitalis is that the symptoms entirely absent one moment are suddenly developed the next by some change in posture. Thus Brunton has pointed out that in many cases of heart disease the patient is much benefited by full doses of digitalis, but that it is dangerous for that patient to suddenly stand erect lest he have an attack of cardiac syncope due to the upsetting of the circulatory balance when it is under the influence of digitalis.

What the cause of this is we do not know. It is certainly not due to weakness, for the cardiac beats when they occur are in themselves more forcible than in health. The probable explanation of this peculiar cardiac irregularity lies in a disturbance of the co-ordinating apparatus of the various parts of the heart muscle. By this the author does not refer to the so-called co-ordinating centre of Kronecker and Schmey, which probably does not exist, but to the changes which may take place in the so-called "contraction wave"

which begins in the normal heart at the great veins and passes from them through the auricular walls to the walls of the ventricles. It has been found by Wooldridge and by Tigerstadt that if the auricles and ventricles be separated by a ligature or clamp they still continue beating, but no longer do so synchronously; or in other words the centres of each set of walls act independently of the others. The irregular action of the heart under digitalis is probably dependent upon this disassociation of its parts, and this theory is still further substantiated by the experiments of Roy and Adami, who have proved that independent contraction of the various parts of the heart can be produced by stimulation of the peripheral end of the cut vagus, a part of the nerve which is stimulated by digitalis in these large doses which we have been considering.

The reason therefore that the cumulative action of digitalis is more noteworthy than that of other drugs is that this effect is more apt to occur and to occur suddenly, and that it does not develop premonitory symptoms which force themselves as warnings upon the physician who is careless in its use or does not know the susceptibility of his patient.

That the symptoms to which the term "cumulative effect" is applied are practically identical seems proved by general consensus of opinion regarding them. Thus Von der Heide agrees with Withering (*An Account of the Foxglove and Some of its Medical Uses*, 1785) that two sets of phenomena take place: first, abnormal cardiac slowing, an irregularity, smallness and rapidity of the pulse after large doses; and second, vertigo, nausea, cramps, and sleeplessness. Husemann speaks of these circulatory and nervous effects, and of the slow, small and intermittent pulse; and as Edes says, most authors intend by the use of this phrase "cumulative action" to denote the sudden supervention of toxic symptoms, and in most cases a rapid, or at any rate a feeble and irregular, pulse.

Again, we find in Soullier's *Thérapeutique* (*loc. cit.*), published in Paris in 1895, that the dominant symptoms of digitalism, or that condition resulting from the overuse of this drug, are gastro-intestinal disorders, nausea and vomiting, cold sweats and general malaise. The pulse is exceedingly slow and filiform, and finally arrhythmical. Sometimes convulsions, dilated pupils and respiratory oppression are met with, and this condition arises from the retardation of the

absorption of the first doses of the drug. Reil states that the symptoms consist in pain in the epigastrium, nausea, great feebleness, amblyopia, and a feeling of weight in the head. Durozicz (*Académie de Médecine*, Mai 27, 1879) mentions the abuse of the alcoholic preparations of digitalis, and after naming a somewhat similar train of symptoms as already given as resulting from overdoses, he states that symptoms simulating meningitis may occur. Trousseau has also pointed out that full doses produce hallucinations, delirium, and a slow pulse of 32; and this is endorsed by Peter (*Bull. de Thérap.*, 1883, p. 108). The statements of Durozicz, Trousseau and Peter refer rather to poisoning than to effects resulting from cumulation, but it is of interest to note that the symptoms are much the same. It is also of interest to note that Raymond Tripiér (*Revue de Médecine*, 1883, 1884, 1885) points out that in some persons digitalis causes a slow pulse, syncope or epileptiform attacks, cardiac arrhythmia or bigeminal pulse, digestive disturbance, and pains resembling those of rheumatism in the limbs. It is evident therefore that the circulatory disorders under digitalis are practically identical whether a poisonous dose be taken at once; or it accumulates slowly and is then all absorbed, which is practically equivalent to one large poisonous dose; or that a person with an idiosyncrasy is poisoned by a dose which would not poison an ordinary individual. Soullier goes so far as to state that in the presence of digitalin we should institute treatment consisting of coffee, or caffeine, and strychnine.

In order that I might obtain a consensus of opinion from those best able to speak of this matter in an authoritative manner I sent the following series of questions to a large number of eminent practitioners and teachers, and have drawn the following information from their replies:

These gentlemen were: I. E. Atkinson, M.D., Professor of Therapeutics in the University of Maryland, Baltimore; F. C. Shattuck, M.D., Professor of Clinical Medicine in Harvard University, Boston; H. C. Wood, M.D., Professor of Therapeutics in the University of Pennsylvania, Philadelphia; W. H. Thomson, M.D., Professor of Therapeutics in the University of the City of New York; Abraham Jacobi, M.D., Professor of Diseases of Children in Columbia College, New York; James C. Wilson, M.D., Professor of the Practice of Medicine in Jefferson Medical College

of Philadelphia; Edward G. Janeway, M.D., formerly Professor of the Practice of Medicine in Bellevue Hospital Medical College; James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania; James T. Whittaker, Professor of the Practice of Medicine in the Medical College of Ohio; Dr. John H. Musser, Assistant Professor of Clinical Medicine in the University of Pennsylvania; Dr. T. Lauder Brunton of London; Dr. G. L. Peabody, Professor of Materia Medica and Therapeutics in the Medical Department of Columbia College; Dr. A. D. Blackader, Professor of Materia Medica and Therapeutics in McGill University, Montreal.

1. Do you believe in the possibility of, or have you met with, the so-called cumulative action of digitalis?

2. If so, under what conditions has it occurred as to disease, dosage, and age of patient? Or, in other words, what do you think predisposes to the development of these effects?

3. If you have met with it, what have been its chief manifestations?

4. What preparation of digitalis is most apt to produce this condition?

5. Has the presence of fever in your experience interfered seriously with the production of the physiological effects of digitalis?

In answer to Question 1—"Do you believe in the possibility of, or have you met with, the so-called cumulative action of digitalis?"—Dr. I. E. Atkinson, of Baltimore, states that he believes it possible for digitalis to produce cumulative effects, and he has seen two or three cases which have given very positive evidence of cumulative action.

Dr. Frederick C. Shattuck, of Boston, does not believe that digitalis possesses any more cumulative action than any other powerful drug which is given in full dose, particularly if there be idiosyncrasy present.

Dr. H. C. Wood, of Philadelphia, makes the following characteristic reply: "May I answer your inquiries in regard to the so-called 'cumulative action of digitalis' by saying that those who deny its existence are in a similar position to the famous King of Siam, who banished from his Court in deep disgrace the traveler who told him that he had seen the tops of rivers so solid that one could walk over them?"

A belief in the cumulative effect of digitalis is also recorded by Jacobi, who, when asked for an opinion, referred me to his "Therapeutics of Infancy and Childhood," in which he

says: "When large doses have been given for some time, accumulation of the effect takes place."

Dr. William H. Thomson has also met with this condition, and reports a case (see further on).

Dr. J. C. Wilson states that he has "never encountered the cumulative effects of digitalis."

Dr. Janeway replies that he has met with it.

Dr. Tyson states that he has met with it, although he does not believe that the term conveys an idea of the mode of its production.

Dr. Whittaker replies: "I do believe in the possibility, and have seen cases, of excessive action; whether it could be called cumulative or not I am not prepared to say from my own experience."

Dr. Musser has "never met with it and does not believe in it."

Dr. Lauder Brunton writes as follows: \*

MY DEAR HARE—I think that digitalis is cumulative; at any rate one certainly finds that after it is used for a while disagreeable symptoms occur. In my own experience these are generally shown first by the stomach in the form of nausea and vomiting. Just the other day I had a case in the Hospital where under the influence of digitalis great improvement occurred at first, then the pulse became more rapid and irregular. Instead of increasing the digitalis, as it was my first impulse to do, I knocked it off entirely and put the patient upon bismuth and soda, as I considered that the cardiac disturbance was the reflex from the stomach and that the gastric disturbance was due again to digitalis. The result appeared to show the correctness of my ideas, as the patient began to improve forthwith. I almost never give it in fever, so that I cannot answer your fifth question, nor can I say which preparation of digitalis is most apt to cause disturbance. The whole question is an exceedingly complicated one, and I regret I cannot give you more definite answers.

Dr. Peabody has never met with this phenomenon.

Dr. Blackader replies: "Yes; to some extent. Too frequently repeated in large doses it may accumulate in the system more rapidly than it is eliminated."

In reply to Question 2—"If so, under what conditions has it occurred as to disease, dosage, and age of patient; or, in other words, what do you think predisposes to the development of these effects?"—Dr. Atkinson states: "The cases have always been of organic heart trouble, when the patients have continued to take digitalis upon their own responsibility and for protracted periods—in one case for nearly three months."

Dr. Shattuck states: "I have seen the toxic—cumulative—effects of digitalis under the greatest variety of diseases, dosage, and age.

It has seemed to me, speaking broadly, that the greater the real necessity for the drug the less the danger of toxic action, and yet now and then I come across a case, as that mentioned, where a drug similar in its action to that of digitalis agrees while the latter distinctly disagrees. A predisposition to toxic effect depends, as it seems to me, on (a) ill-judged exhibition—giving the drug when it is not required—and (b) individual peculiarity not to be known beforehand."

Dr. Wood states in his book that it is connected with slow absorption and elimination, and is much more prone to occur when there is no diuretic effect. It is very apt to take place after tapping. Brunton thinks this effect is apt to take place at the development of crisis in fevers.

Dr. Janeway has met with the cumulative effect especially in Bright's disease, and possibly occasionally in pneumonia and in heart disease. He thinks the conditions produced by the continued use of the drug, and that pushing the drug when the heart has become slowed or irregular soon develops the cumulative effect.

Dr. Tyson says it occurs under circumstances which interfere with a prompt absorption of the drug, or at least its transmission to the centres in which it acts in producing its effects, followed by a sudden removal of such obstacle. Such removal is brought about by brisk purgation, by the removal of accumulations of fluid in the peritoneal or pleural cavities, and especially by a blood-letting practiced when such obstacle exists.

Dr. Whittaker says: "The excessive action has resulted from too long administration—that is, from use continued after the effects of the remedy had been obtained."

Dr. Blackader says: "Untoward symptoms are most apt to develop when the heart muscle is to any degree diseased."

In answer to Questions 3 and 4—"If you have met with it, what have been its chief manifestations? What preparation of digitalis is most apt to produce this condition?"—Dr. Atkinson says "the chief symptoms have been profound debility with a tendency towards syncope, nausea, very slow pulse while in a recumbent posture, becoming rapid and feeble upon exertion. He has no recollection or memoranda of effects upon the vision or kidneys. The urine was not suppressed. Recovery followed within a few days after the drug was abandoned. The dose had not been increased and was not large." His cases used the tincture.

Dr. Shattuck states: "The toxic effects as far as I have seen them—and they have occurred many times under my observation—are anorexia, nausea, vomiting, a weakened and irregular pulse, and diminution in the urine. The toxic effects depend on the purity of the drug rather than the preparation."

Dr. Wood also states (see also answer to Question 1) that sometimes the first marked symptom of this action is severe syncope, followed by paraplegia, vomiting, diarrhea, insensibility, and death. Usually, however, only the change in the pulse occurs if the drug is not pushed.

Dr. Wood reports: "A single case from my own experience will suffice: A woman was taking digitalis freely, with the hope of bringing about absorption of a pleuritic effusion; after many days no effect was manifest from the drug, until suddenly her pulse, which had been running about 90, fell to 75. The use of the digitalis was immediately discontinued. The next day the pulse was 60; the next day, 50; the next day, 40; with all the characteristics of over-digitalis action. It was nine or ten days before the pulse had regained its normal rate. In conclusion I see no reason for supposing that one preparation is more apt than another to accumulate."

Dr. W. H. Thomson, of New York, replies as follows: "I can report one unmistakable case of dangerous and specific symptoms of cumulative action of digitalis in a phthisical patient, female, aged 25, after taking Niemeyer's pill, one three times daily, containing one grain of powdered digitalis, for six days. There was no reason to suspect that the pills themselves had accumulated in the primæ viæ previous to the sudden onset of the symptoms, which were deathly nausea and vomiting continuing for eighteen hours, with very intermittent pulse. Every measure failed to stop the vomiting until half a grain of morphine was given subcutaneously, which then arrested it. Patient lived for two years afterwards without any similar experience. There was no renal element in this case."

Dr. Jacobi (*loc. cit.*) says the pulse becomes quite slow and irregular and vomiting sets in in this condition.

Dr. Janeway has found the chief manifestations of this state to be sudden death on exertion, and he adds: "I have in the past on several occasions made post-mortem examinations of persons who had been under treatment in hospital with digitalis who had dropped dead on going to the water-closet; also in pneumonia under treatment with digi-

talis some are inclined to hold sudden death due to digitalis. It is somewhat difficult to be certain in these cases."

Dr. Tyson replies "almost solely slowing of the pulse, at times to 40 or even less beats per minute." He does not think it is peculiar to any form of the drug, though he has met it most frequently when using the tincture.

Dr. Whittaker says: "The chief manifestation was the hard, slow pulse, with subsequent exhaustion of the heart, and paralysis. I have seen the condition only after the use of the infusion, which is usually given in larger dose."

In reply to Question 5—"Has the presence of fever in your experience interfered seriously with the production of the physiological effects of digitalis?"—Dr. Atkinson states as follows: "In my experience the presence of fever modifies the action of digitalis very profoundly; in the various febrile conditions in which the heart often shows evidence of failing (typhoid fever, pneumonia, etc.) digitalis is notably inferior to strychnine and alcohol, and indeed as a rule fails to influence either the frequency or force of the heart's action or to increase arterial tension. In my experience the febrile condition in great measure prevents the action of digitalis, as shown in the afebrile state."

Dr. Shattuck states: "I have thought that a febrile patient seemed less likely to be upset by digitalis—or evidently so. I may add that if I prescribe digitalis for a patient who cannot communicate with me promptly and whose condition is not urgent, I am apt to give the drug only twice a day at twelve-hour intervals. This is with the idea of diminishing the liability of toxic or unpleasant effects of the drug."

Dr. Thomson states: "In my opinion digitalis has no beneficial effect upon the heart when weakened by fever. In diphtheria its effect is most disastrous."

Dr. J. C. Wilson: "The effects of digitalis are not manifested in febrile cases in the same way nor to the same extent as in other conditions. This has appeared to me, however, to be due not so much to high temperature as to associated derangements, especially in part malnutrition of the heart muscle."

Dr. Janeway replies that in his experience the presence of fever "does not necessarily" interfere with the effects of digitalis.

Dr. Tyson replies: "I cannot say that I have observed such interference."

Dr. Whittaker says: "It seems to me that the presence of fever, by delaying the absorp-

tion of the remedy, interferes with its physiological effects."

Dr. Musser says that he has never secured physiological effect in the presence of fever.

Dr. Peabody thinks that fever does interfere with the effect of digitalis.

Dr. Blackader states that the presence of fever to some extent antagonizes the action of digitalis, and therefore demands a larger dose to produce the same physiological effects.

Reil has remarked upon the fact that cumulation occurs less frequently when digitaline is given than when the infusion is used, because he thinks that digitaline gives warning of its excessive effect, whereas the infusion does not.

It is interesting to note in connection with the answers to the last question, as to influence which the presence of fever exercises upon the action of digitalis, that almost every therapist recognizes that fever does prevent digitalis from acting. In my earliest days as a physician in charge of patients in the wards of a large hospital I noted this fact, and on searching for similar experience as recorded in literature I found both such experience and careful pharmacological research pointing to the truth of my observation. Thus as long ago as 1865 Thomas recorded the fact that digitalis does not act in certain cases of pneumonia, and Brunton and Cash then proved that the failure of the drug to slow the pulse depended upon the fact that the inhibitory action of the vagus centres, ordinarily stimulated by digitalis, is lessened by heat, and that the peripheral ends of the vagus are also depressed. A belief that this cause exists for the non-appearance of the physiological action of digitalis is expressed by Wood.

#### MALARIAL HEMATURIA.

By J. W. MEEK, M.D.,  
Camden, Ark.

In the October number of the THERAPEUTIC GAZETTE is a review of The American Text-book of Applied Therapeutics, and the reviewer criticises Dr. Dawson's treatment of malarial hematuria by the quinine method. In the December number appeared a criticism of Professor Tyson of Philadelphia for advocating a similar treatment in his Text-book of Medicine, recently issued.

I have not seen Dr. Dawson's article, but have read Professor Tyson's, and I desire, as one who has had some experience with this

malady, to add further *emphasis* to your criticism, and in the name of humanity to protest against a further promulgation of the idea that quinine is admissible in the successful treatment of this affection.

I know nothing of Dr. Dawson's opportunities for observing this disease; he may speak from personal observation or the contrary. Professor Tyson claims to have had considerable experience with the malady.

I will say this, that if quinine is curative of malarial hematuria in Philadelphia, it is certainly a disease very different from that occurring in Arkansas.

Malarial hematuria is, in North America, confined almost exclusively to the Southern or Southwestern States; moreover, it is rarely seen in cities, but is chiefly confined to rural districts. As a rule our ablest medical investigators live in the cities, and hence rarely see it. Furthermore, the men who write our text-books of medicine (I speak it to the shame of my Southern brethren) nearly all live in the North.

From this it will be seen that many of our best physicians, or at least our ablest scientific investigators, rarely see a case, and many of our text-book authors have perhaps never seen one. "Swamp doctors" as a rule do not write for publication, and the history of malarial hematuria has not been written by those who have met it face to face and engaged it in deadly combat.

It sounds very plausible to say that malarial hematuria is caused by the malarial parasite, and hence quinine is necessarily the remedy, but this species of reasoning affords but little consolation to the conscientious physician in the hour of humiliation and defeat; nor do the statistics of this treatment warrant the premise that the disease is essentially malarial in its origin. Professor Tyson says, page 72 of his text-book: "If quinine fails to break up the paroxysm of the mildest form, when administered as directed, the hematuria has an origin other than malarial." Now in my experience and that of many others it not only fails to arrest the paroxysm but aggravates every symptom, and adds very greatly to the mortality of the disease.

The diagnosis of some diseases is at times *only* positively made by the administration of certain remedies and an observance of the therapeutic action of the drug administered. Thus the curative action of mercury and iodide of potassium, administered in certain obscure affections, is considered positive proof of the specific nature of the malady thus cured,

and the immediately curative action of quinine is and should be proof of the malarial nature of the disease thus treated. Judged by this rule malarial hematuria cannot be classified as a strictly malarial disease.

It is to be regretted that there seems to have been no blood examinations by competent bacteriologists to determine the presence of the malarial parasite or other organism. A proper examination will probably discover a bacterium at present unknown.

The mortality from this disease is not so heavy as it was twenty years ago, and at that time it was treated almost exclusively by massive doses of quinine.

During the first ten years of my professional life I treated quite a number of cases with large doses of quinine—twenty, forty and sixty grains being given in twenty-four hours—and the mortality was at least fifty per cent. Since that time I have treated quite a number without quinine, and the mortality has been eighteen per cent. The cases treated without quinine were as severe as those treated with it.

Dr. Guise, of Mississippi, reports having seen about twenty-five cases treated with quinine, and a mortality of more than fifty per cent.; and he also reports four cases treated without quinine, all of which recovered. Four successful cases is too small a number to prove the success of any method, but twenty-five cases with a mortality of fifty per cent. would not encourage one to pursue that plan. Hyposulphite of sodium has in my hands and also in the hands of others proven decidedly curative in this affection, but in my experience it has proven of little value in other forms of malaria. This to my mind establishes another point against the malarial origin claimed. The disease undoubtedly occurs almost if not exclusively in malarial regions, and nearly always in persons who have shown previous evidence of malarial toxemia; but malaria may be only a Trojan horse by which the gates are unbarred to admit a more deadly foe to the citadel of life—the patient's blood.

In the THERAPEUTIC GAZETTE for July, 1892, Prof. H. A. Hare, of Philadelphia, has with a commendable zeal made an effort to collect the experience of medical men who have had to deal personally with this disease. It is to be regretted that such authors as Osler, Pepper and other justly eminent authorities have not done the same before giving the sanction of their text-books to the stereotyped treatment by quinine, etc.

Professor Hare has, in reply to his inquiries, received the following from physicians practicing in Texas, Mississippi, Georgia, and Alabama:

Nineteen physicians, whom he classes as "experienced," consider quinine "useful" in this disease, but twenty-eight—"experienced"—consider it "harmful." This gives a decided majority of "experienced" ones against its utility. Of course the reader can form no idea of the comparative abilities of these respondents. The replies from those whom he classes as "inexperienced" are largely in favor of quinine. The knowledge of the latter class has doubtless been gained from text-books, and it would appear from an analysis of the above replies that experience with the malady changes the views of a large majority.

It is not my intention to enter into a full description of this disease, nor into all the details of what I consider the proper treatment. My main object in inditing these lines is to lift up my "voice as of one crying in the wilderness" against the evil of advising the use of quinine in this disease. I am not an enemy of quinine in the abstract. I give it with a free hand—frequently thirty to forty grains per diem—with the happiest results in other maladies, but I desire to see the profession set the seal of their eternal reprobation on its abuse in malarial hematuria.

A few words in regard to the clinical history and treatment and I am done.

The subject has usually been suffering with an intermittent fever, and has almost invariably taken quinine the day he is attacked. A chill ushers in the attack; bloody urine appears in from one to three hours; febrile reaction is not usually above  $102^{\circ}$  or  $103^{\circ}$ . The skin and conjunctiva become intensely yellow in from two to six hours. There is constipation and great gastric irritability. The vomited matter is frequently green, and late in the disease becomes black—a "coffee-ground" color. Rigors frequently occur every six hours. The urine is usually at first increased in quantity, but later becomes scanty; it gives a heavy albuminous deposit from heat or nitric acid, and under the microscope shows blood casts and red blood-corpuscles. The jaundice is, judged by the rapidity of its progress, necessarily hematogenous. A complete obstruction of the common bile-duct could not produce such an immediate discoloration. Some subtle poison has gained entrance to the vital fluid—is breaking down the red blood-corpuscles—producing an explosive hemoglobine-

mia; hence the jaundice is due to pure hemoglobin in the blood. If this condition is not soon arrested the vital fluid becomes incapable of stimulating the nervous centres to a performance of their functions, vaso-motor paralysis occurs, the blood is emptied into the larger internal veins, and the patient is bled to death into his own blood-vessels. This is the disease as it occurs in Arkansas.

Some patients are stricken down as if by a blow and will die in spite of all remedies, but this class is fortunately small. In the *New Orleans Medical and Surgical Journal*, November, 1891, I concluded an article on the subject of malarial hematuria with the following recommendations, which I cannot now improve upon:

1. Give hyposulphite of sodium in drachm doses every two hours until the patient is thoroughly purged; then continue in smaller doses until the system is saturated with it.

2. Give morphine and atropine hypodermically, sufficient to quiet stomach; also blister the epigastrium if necessary.

3. Give an abundance of water to wash out the coagula that must necessarily accumulate in the urinary tubules after a hemorrhage.

Hot water or hot lemonade is frequently better borne by stomach than cold. Cupping over the loins is also to be recommended.

4. The diet should be mild. Fresh butter-milk is usually well borne by the stomach and is also a mild diuretic, and I have come to rely on it as an article of diet in this as in many other diseases.

5. Keep patient in a strictly recumbent posture.

I give hyposulphite of sodium in this affection for the following reasons:

- a. It is a stimulant to the hepatic secretion, causing in large doses abundant biliary secretion, and is also a valuable intestinal antiseptic.

- b. I believe that free sulphurous acid is disengaged in the blood, and that this agent is an antizymotic to such an extent that it destroys the micro-organism which is the real cause of the disease, and thus arrests the process of corpuscular disintegration.

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#### REPORT OF A CASE OF PUERPERAL SEPTICEMIA TREATED WITH NUCLEIN.

BY HENRY M. JOY, M.D.,  
Grand Rapids, Mich.

The treatment of puerperal septicemia must of necessity be considered from two standpoints, namely, surgical and medical.



The first has for its consideration the removal or limitation as far as possible of the source from which the toxic elements are supplied to the blood, and the second the aiding of Nature in her efforts to overcome the poisons already in the system. In other words, to increase the antitoxic constituents

tex presenting. The case was conducted with the greatest possible antiseptic precautions, and labor was completed naturally in about six hours. The patient being out of the city I did not see her again until the morning of the sixth day, when I was hurriedly summoned to attend her. I found

#### GRAPHIC CLINICAL CHART. Reprinted by J. P. Cramer, M.D., M.A.

Clinical Notes

Pulse

*Pulse*

of the blood or to strengthen those constituents which are already present.

A report of the following case in connection with the fulfilment of the second indication will I think be of interest:

On December 10, 1896, I was called to attend Mrs. C. in her second confinement. I found the patient in good physical condition. The child was lying in second position, ver-

that the previous night she had had a severe chill lasting about an hour. At the time of my visit the temperature was 105°; pulse 150, feeble and thready. Abdomen greatly distended and very tender on pressure, skin icteric, and a condition of marked apathy denoting most profound sepsis. A vaginal douche of creolin solution was administered at once, followed by an intra-uterine douche

of the same solution. My attention having been called to the use of Parke, Davis & Co.'s nuclein in puerperal septicemia,\* and having had satisfactory results from its use in cases of surgical sepsis, I ordered one drachm of the five-per-cent. nuclein solution (P., D. & Co.'s) to be given internally every three hours. The day following the nurse in charge of the case reported a slight chill followed by a temperature of  $105^{\circ}$ , pulse 110, but general condition of patient somewhat improved.

Vaginal douches were given daily by the nurse, and nuclein continued as before. No recurrence of the chills occurred after the second day. The temperature remained approximately the same for six days, when it fell by crisis (see chart). Although during the first six days there was little variation in the height of the temperature, the daily remissions were marked, and the pulse continued to fall steadily and improve in quality, the general condition being one of progression. The patient's mental condition changed rapidly for the better, appetite returned, and the skin assumed its normal color.

Nuclein, then, is a remedy which aids us in fulfilling the second indication in the treatment of puerperal septicemia—*i. e.*, the strengthening of nature's antitoxic elements. It acts favorably and promptly upon leucocytosis, it causes no unpleasant complications or effects, it acts rapidly, and under its use the fetid discharges quickly diminish.

#### THE PASTEURIZATION OF MILK.†

By J. P. CROZER GRIFFITH, M.D.,

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Sterilization of milk was practiced empirically long before much was known of its scientific principles. It has been known by mothers for years that milk was less liable to derange an infant's digestion if it was scalded before being used; and it has long been the practice of physicians to recommend the boiling of milk and the subsequent keeping of it on ice in order to prevent decomposition taking place. The preservation of milk by long boiling was recommended from a scientific standpoint by Solltman, Albu, Bertling, and others. So, too, the modification of this process, consisting in the steaming of milk in a water-bath, antedated the studies of Soxh-

let, and was advised by Röder, Hartmann, and others. The first, however, to devise a method both scientific and practical, for the sterilization of milk at the infant's home, appears to have been Soxhlet, writing in 1886. The characteristic of his method which distinguished it from any preceding one was that the milk for each feeding was sterilized in its separate bottle, and the number of bottles with their contents, sufficient to last the entire twenty-four hours, were all sterilized at once. By this plan was avoided the opening of a large vessel of sterilized milk in order to take out the amount required at different times, and the attendant danger of reinfection of the remaining milk. In all previous methods the milk was sterilized in bulk. Later sterilizers are all made on the Soxhlet principle. For practical purposes a single steaming in the sterilizer is sufficient, since the bottles will be placed on ice in any case afterwards as a matter of precaution, and the milk will be used within twenty-four hours. In very hot weather it is not a bad plan to resterilize in the evening the bottles which remain. Flügge has shown, too, that five minutes at a temperature of  $100^{\circ}$  C. ( $212^{\circ}$  F.) is as good as forty-five minutes; yet he recommends an exposure of ten minutes; and in practice a longer time is conveniently employed.

Now it is well known that boiled milk has a decidedly altered taste and odor, and it is certain that even milk sterilized in special apparatus will show this same alteration. But what is far more important is the fact that the heating of the milk to the boiling temperature produces chemical changes which may seriously affect its digestibility. Leeds found that a temperature of  $100^{\circ}$  C. coagulated some of the lactalbumen, while it rendered the casein less coagulable by rennet, and made it less easily acted upon by pepsin and pancreatin. In the case of many children this alteration appeared to make but little difference; in others, however, the assimilability of sterilized milk was certainly much diminished, and the infants did not appear to thrive upon it. These observations have been confirmed by others. The effort consequently has been made to discover a method by which the milk might be rendered free from germs and yet have its taste and digestibility unaffected.

Pasteur found in 1868 that wine exposed for a short time to a temperature of  $55^{\circ}$  C. ( $131^{\circ}$  F.) would not spoil. Later investigations based on this discovery have developed the method which now commonly goes by the

\* Boise: Treatment of Puerperal Septicemia.

† Read before the Philadelphia Pediatric Society.

name of pasteurization; this consisting in the exposure of milk or other liquids to a temperature ranging from 55° to 80° C. (131° to 176° F.) and followed by rapid cooling. As applied to milk it has been found that a temperature of 75° or 80° C. (167° to 176° F.) would kill nearly all the pathogenic germs, and either kill or practically destroy the action of the germs producing milk-decomposition. It would not however destroy the spores; consequently the element of rapid cooling is an important one in the process, in order to prevent the development of these spores later.

The apparatus used by Pasteur was a simple one, consisting merely of a vessel holding wine, the bottom of which was substituted by a receptacle holding water. The water was heated up to 80° or 90° C. (176° to 194° F.) by a fire beneath. When the wine had reached the temperature of 55° C. (131° F.) the process was complete. According to Bitter, Thiel was the first to apply this principle to milk; and after him numbers of pasteurizers have been devised, many of them expensive and elaborate, and intended for the commercial preparation of pasteurized milk. All of them aimed to heat the milk to such a temperature that germs would be rendered harmless and yet the character of the milk remain unaltered. It has been found that a temperature of 80° C. (176° F.) will produce the undesired changes, and even at 70° C. (158° F.) the alteration begins; consequently the temperature employed must be below this. The most important pathogenic germs are killed at a temperature varying from 55° to 70° C. (131° to 167° F.). Probably we are safe in estimating the temperature sufficient for the destruction of the tubercle bacillus to be 68° C. (154° F.), for the typhoid bacillus from 55° to 60° C. (131° to 140° F.), and for the diphtheria bacillus about 58° C. (137° F.). Most of the saprophytes will be killed at a temperature of 65° to 75° C. (149° to 167° F.). It is clear then that if we pasteurize milk at a temperature of 68° to 75° C. (154° to 167° F.) we shall not materially alter its taste and digestibility, but we shall render it practically germless. Bitter and Freeman have each found 68° to 69° C. (154° to 156° F.) the suitable temperature for the purpose. Pasteurization can therefore be recommended as a very satisfactory substitute for sterilization, without the disadvantages of the latter.

I wish, however, to call attention to the following limitations of the process: In using pasteurization we are always on the edge of danger. We are much more liable than with

a temperature of 100° C. to have decomposition of the milk take place later. Milk which has been pasteurized will not keep as long as sterilized milk. We are not comparatively safe, as with sterilization, in leaving the milk in a warm place. It should always be kept cool, and when possible on ice. In the heat of summer, in the case of poor families where one has reason to distrust the ability to keep the milk cool, I should much rather depend upon sterilization, believing that this with all its faults is much safer than using milk not prepared at all, or that which pasteurization has rendered only partially safe—that is, deceptively unsafe. But under any other conditions pasteurization is certainly much to be preferred.

Then I want to utter a warning against the makeshifts for pasteurization which are recommended by some physicians. In this process we are dealing with temperatures which allow of little variation. Consequently to tell a mother—as is often done—to fill the bottles with milk and place them in a dish-pan of boiling water just removed from the stove is in my opinion a very dangerous thing to do. We do not know what temperature is attained in this way, whether too low to be of any value or so high that we are getting all the disadvantages of sterilized milk. It is far safer to scald the milk in the old-fashioned method. Even with so good an instrument as the Arnold sterilizer the accurate pasteurization of milk is a difficult matter. If we leave the hood off of the sterilizer and set the lid ajar, we will find that the temperature varies from 80° to 90° C. (176° to 194° F.)—a temperature entirely too high—depending upon the heat of the fire. And even if we use a thermometer and sit down and watch the pasteurization, it is almost impossible to obtain a uniform temperature in this way. What is needed is some simple apparatus which any nurse-girl can use and which will give accurate results. Such an apparatus is the pasteurizer devised by Dr. R. G. Freeman, of New York. It consists simply of a metal pail, into which fits a receptacle holding the bottles to be sterilized. The receptacle is so made that each bottle fits into a separate small metal cylinder slightly larger than the bottle. In using the apparatus the pail is filled with water to the level of the groove running around it; it is then placed on the stove and the cover put on. The proper amount of milk for each feeding is put into each bottle, the bottles corked with raw cotton and placed in the receptacle. Water is

then poured around them into each cylinder, in order to prevent the direct action of the hot water in the pail from cracking the bottles. As soon as the water in the pail is boiling it is removed from the fire and placed out of the draught upon a non-conducting substance. The lid is now removed, the receptacle put in and the lid reapplied. It is left thus for forty-five minutes, when the lid is removed and the receptacle elevated so that it rests upon supports which hold it partially out of the pail, and a stream of cold water is now turned into the pail for fifteen minutes. The bottles are then kept on ice till needed. The principle of the apparatus is the fact that the given quantity of water which is in the pail will, in cooling, elevate the temperature of the milk to the desired degree; so that the two liquids become of the same temperature at 68° to 69° C. (154° C. to 156° F.). Receptacles are made either for ten six-ounce bottles or seven eight-ounce bottles, and either receptacle will fit into the pail.

Freeman has made thermometric experiments with the apparatus. He finds that in the first five minutes the milk rises to a temperature of 50° to 55° C. (122° to 131° F.); in ten minutes it reaches 60° to 65° C. (140° to 149° F.); and in fifteen minutes has reached 65° to 68° C. (149° to 154° F.). It continues at about 68° to 69° C. (154° to 156° F.) for the remaining thirty minutes, at which time the cold water is turned on; in fifteen minutes from this time the milk has dropped to the temperature of the cold water used. He recommends that when the milk is first received from the milkman it be put in the refrigerator. But he finds that whether the milk be put into the bottles at 10° C. (50° F.) or at 20° C. (68° F.), the approximate temperature of the room, the resultant temperature during pasteurization varies only 2° C. (3.6° F.)—an amount entirely insignificant.

In conclusion I have only heartily to recommend this apparatus to your consideration. I think it will spare you a world of anxiety and prove the saving of a vast amount of trouble to the mothers of your little patients.

I would acknowledge my indebtedness especially to the articles of Bitter (*Zeitschrift für Hygiene*, 1890, viii, 240); Flügge (*Zeitschrift für Hygiene*, 1894, 272); Soxhlet (*Münch. Med. Woch.*, 1886, Nos. 15, 16); Leeds (*American Journal of the Medical Sciences*, June, 1891); Freeman (*New York Medical Record*, 1892, ii, 8; *Archives of Pediatrics*, August, 1896).

## SIMPLICITY AND PALATABILITY IN PRESCRIBING.

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There are a few time-honored medical dicta that are to be found in most text-books and in all orthodox lecture courses, but which are usually promptly forgotten by the student and disregarded by the practitioner, unless he should be called to the chair of a medical teacher. In this category are the theoretical description of temperaments and the therapeutic phrase "*curare tute, cite et jucunde*." Unfortunately, however, this last rule is often so drilled into the mind of the student by successive teachers of materia medica and therapeutics, and is so often found in the "general considerations" of various text-books on this subject, that the physician adheres to it as a practical guide, instead of allowing it to lapse into a harmless theoretical concept. Polypharmacy has its claim to respectability largely on the conception of "basis, adjuvant, corrigent, and vehicle." We have progressed from the old notion that a physician's professional standing was in direct ratio to the number of ingredients in his prescription, and we ridicule as a "shot-gun" prescription one calling for more than half a dozen drugs, unless—like some tonic and cathartic compounds—it is backed by some famous name. We have not, however, attained the moral courage necessary to prescribe one thing for one indication. A prescription calling for only one or two drugs occasions a sense of incompleteness; we pause before signing it, to think if we cannot add something—harmless at any rate—to keep the solitary drug or the pair company. On precisely the same principle some persons, after expressing the full idea which they have in mind, feel that their sentence is too abrupt unless they add "Don't you know," or some similar phrase.

Little as we agree with the symptomatic prescribing of the homeopaths, we must give them credit for originating and, so far as possible, adhering to the rational method of prescribing one drug at a time, and according to a definite system. We may not admire the superficial observations and the reliance on subjective symptoms involved in "proving" a drug, but we must respect the genuine homeopath for giving bryonia, with a definite idea and a firm faith, not because he has heard that it was "good for" a certain dis-

ease or because "he didn't know just what else to give."

Just as the charlatanism of phrenology was an effort—though perhaps not an honest one—in the same direction in which cerebral localization has recently made so much progress, so Hahnemann's system of drug-proving was an attempt—and, personally, I believe a conscientious and painstaking one—at solving the problems which pharmacology and physiological chemistry are now attacking on a rational and scientific basis. The ideal prescription is an equation between a definite understanding of pathology and an equally definite information as to the action of drugs. Unfortunately, the equation is not always possible; we are still ignorant of the true nature of many diseases; we are not infrequently confronted with practically insoluble problems in diagnosis; and there are many drugs which act, we know not how. The prescriber should, at least to himself, be keenly critical of his prescription and should know why he advises every ingredient, even if he has to confess at times that ignorance has forced him to empiricism.

In a very different sense from the accepted one, the ideas of basis, adjuvant and corrigent must still be borne in mind. Seldom does a disease depend upon a single pathological change so that it can be combated by a single remedy, and we may properly concentrate our attention on one indication as of prime importance. But even in these circumstances we must set each drug against its own indication and afterward consider whether harm will arise from administering all the bases, and which, if any, are to yield to the superior claims of others. But the conception here is quite different from that in which the prescription is a unity, with one drug supported by and modified by others. For example, in many cases of dyspepsia there is need of hydrochloric acid, of strychnine, and of iron. But who can say that among these aids to secretion, to motion and secretion, and to general nutrition, respectively, one is a basis, another an adjuvant, and the third the corrigent? We shall be very likely to regard the indication for iron as offset by the inability of the weakened organs to assimilate it, but the indication remains as urgent as before. Neither is it wise to combine the other two remedies, first, because the sour and bitter mixture will be very apt to excite vomiting; secondly, because the strychnine will act most efficiently on the empty stomach, while the acid

is most needed toward the height of digestion. Again, in many cases of bronchopneumonia the indications are very clearly (1) to liquefy secretion; (2) to strengthen the heart; (3) to disinfect the air passages and favor resolution. To render the problem simpler, let us ignore the more modern and perhaps superior action of sprays and confine our attention to medicines administered by the stomach. Ammonium chloride, digitalis, and eucalyptol may be taken, respectively, as examples of the corresponding drugs, though various circumstances, including individual prejudices, may lead to the selection of substitutes for each or all. It is unwise to mix these drugs in one prescription, under the conception of basis, adjuvant, and corrigent. Such a mixture is physically incompatible, is extremely nauseating, and by upsetting the stomach is apt to nullify the desired cardiac stimulation. Ammonium chloride dissolved alone in water has merely a pungent, salty taste which is readily removed by a sip of plain, cold water. The digitalis, if given in tablet form, will scarcely irritate the most sensitive stomach, while the eucalyptol, or other volatile principle, is least disagreeable when taken in temporary emulsion with water or milk, followed by coffee or other drink to remove the taste. Again, the ratio between the various medicines should be a changeable one. For the first day, more liberal doses of ammonium chloride will be necessary than later; digitalis will usually have to be discontinued, or at least reduced, after four or five days; various unforeseen occurrences in the course of the disease may call for the increase or diminution of the dose of any one drug. This argument applies also to most cases in which indications for several different medicines coexist. Whether we consider economy, convenience, or palatability, it is usually better to order each medicine by itself.

The conception of corrigent is, unfortunately, a necessary one, simply because so many of our standard drugs have associated actions, some one of which may prove injurious. As we rely more on alkaloids and synthetic compounds and less on crude drugs, the less important will the problem of corrigents become. The matter of "crossed action" depends on the same difficulty of obtaining a drug whose action is simple and uncomplicated, with untoward tendencies. Sometimes the administration of a number of drugs means that we do not dare to give any one in a sufficient dose to overcome the

symptoms presented—not that a true crossed action is desired. Thus, in delirium tremens, we cannot safely give morphine according to its effect, but we may give as much as we dare of this alkaloid, follow it with hyoscine to the therapeutic limit, give a dose of bromide—not perhaps as large as would be compatible with safety, but so large that further increase would not be attended by increased physiological effect—add a moderate dose of acetanilid and of cannabis indica,—all without producing the desired result, so that we may be forced to chloroform anesthesia. In internal hemorrhage, we have the indication for some drug that will constrict blood-vessels, without similarly adding to the tone of the heart. Ergot probably fulfils this indication as well as any drug; but none is perfect. Thus the problem is clearly presented of effecting a crossed action by reducing the cardiac tone by a drug that will not lower vascular tone. Here again the therapeutic problem is unfulfilled—at least so far as the writer knows. The use of strychnine before or during anesthesia, the well meant but improper combination of nitrite of amyl with chloroform, the addition of carminatives to cathartics, are all illustrations of corrigent medication which is but a confession of the imperfections of our materia medica.

Regarding vehicles, very false ideas are current. Too many physicians, even among those who write for publication, foster the impression that a disagreeable drug can be “elegantly” given by adding a syrup and either a fruity or an aromatic flavor. This is comparatively seldom the case. Some persons are fond of peppermint or wintergreen, others of the various spices, others of rose, orange, lemon, etc. But any one of these flavors may be exceedingly disagreeable to a particular individual. Oil of wintergreen is often recommended as a salicylate—containing a high percentage of methyl salicylate—but the writer has found that most persons, even including those who express themselves as liking wintergreen, soon tire of the strong flavor and prefer the sodium salt. Strongly saline, bitter and oily drugs should almost never be given with a syrup. Salines are most easily taken well diluted and followed by a drink of plain water, which will remove the taste almost entirely. Bitter medicines, like strychnine and quinine, can usually be quickly swallowed in capsule, pill or tablet form, without offending the palate. Unless the sense of taste can be temporarily obtunded by a little cocaine, a strong volatile oil, or

even a pinch of salt, many patients will prefer to take a disgusting medicine by itself, removing the taste by afterward drinking some strongly flavored beverage, such as coffee, rather than to mix a bitter and a sweet taste or to spoil by the medicine the flavor of something of which they are fond. Few physicians would use gravy into which the cook had put sugar instead of salt, but many will prescribe cod-liver oil “with a pleasant syrup to disguise the taste.” There are a few palatable emulsions of cod-liver oil, but most of them will cause unpleasant regurgitations; and far more agreeable and less irritating to the stomach are the almost pure and tasteless oils which may be salted and taken clear or on bread. However, the writer holds the heretical view that crisp salt pork, cream, fresh butter, salad oil, fat meats, etc., are superior to cod-liver oil.

Iron and other heavy metals, as well as arsenic, may well be given in syrup. Two of the most palatable syrups are almost unused, that of raspberry and, best of all for the majority who like it, chocolate. The last, in spite of its superiority to all other vehicles—excepting that those who are not especially fond of it usually dislike it very much—is not even official. It is by all odds the best disguise for quinine, and it will nearly conceal other bitters and astringent mineral salts. It is also available for tablets and confections. A few syrups, like that of squill, are actively medicinal. This is to be regretted, as it ought to be possible to give all syrups *ad libitum*.

To sum up, the writer would advocate (1) the use of drugs according to known physiological actions, except when scientific ignorance and clinical experience render empiricism necessary and proper; (2) the use of one medicine at a time, unless coexisting pathological processes demand more; (3) the prescribing of medicines separately, unless it is reasonably certain that their conjoined administration will be safe and agreeable and that their relative doses will remain stationary; (4) the administration of disagreeable medicines in solid form, so that they may be swallowed untasted, unless physiological activity will be sacrificed; (5) the application of common-sense rules according to habits of eating and drinking, in administering medicines whose taste cannot be avoided by insolubility in the mouth. This last means that we shall not mix bitter and sweet things unless the bitter can be almost completely covered; that we shall transform acids into

lemon- or orange-ades or into "shrub" drinks; that we shall salt oily substances and not sweeten salty ones; that we shall respect idiosyncrasies; that when a taste cannot be covered, we shall not try to mix it, but shall rely on rinsing the mouth or establishing a pleasant after-taste.

*TREATMENT OF CANCER OF THE RECTUM, WITH A REPORT OF TWENTY-FIVE CASES.\**

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[Concluded.]

*CASE I.—Resection of four inches of the rectum from a point two inches above the anus, by Kraske's method; recovery; gain in weight, about fifty pounds in nine months. Second operation thirteen months later to re-establish the continuity of the rectum; death from infective peritonitis.*

Rev. W. W. F., of Pottsville, Pa., aged sixty-one, five feet five inches, weight 168 pounds, first consulted me November 16, 1891. He had lost fifteen pounds in the last eighteen months. For two years and a half he had had trouble in his rectum, with frequent bloody stools; sometimes his stools were watery without blood. Of late there had been an almost constant desire to evacuate the bowels; occasionally the call was so urgent that he had been unable to reach a convenient place before having the evacuation. His sleep also was disturbed by it. He had moderate pain and a great sense of rectal fulness all the time. His rectum had never been examined by his physician. Rectal touch revealed a large tumor, especially marked on the anterior wall of the rectum, beginning three inches above the anus. For a week before the operation the bowels were persistently evacuated, partly by enemata, partly by laxatives, both of which were administered daily, and it seemed as though the bowel had been completely emptied.

Operation December 2, 1891. By a curved incision from the posterior inferior spine of the ilium to just posterior to the anus the bones were exposed, the rectum separated, and the coccyx and the sacrum removed at the level of the third sacral foramina. Separation from the prostate and the bladder was very easy, excepting at the level of the

diseased mass, where the adhesions were quite intimate, and in loosening them the peritoneum was opened purposely and quite widely; the bowel was brought down with difficulty owing apparently to the two inferior mesenteric arteries, which acted like guy-ropes. One enlarged gland was found in the meso-rectum. During the dissection the weakened bowel gave way at several points and allowed the contents of the rectum to escape. Sponges, however, were placed in the peritoneal opening and prevented contamination. The opening in the peritoneum was not closed by suture. The diseased portion of the bowel, beginning at a point six inches above the anus and terminating at a point two inches above the anus, was resected, and the cut upper end fastened to the soft parts at the end of the resected sacrum. A long rectal tube was carried up into the colon, and the bowel was then washed out continuously for at least ten or fifteen minutes. In spite of the preliminary cleansing, the amount of material seemed to be endless. I feared to prolong the operation, which had already lasted about two hours, and so desisted from washing out the bowel before it was entirely clean. The long time consumed was probably on account of its being my first resection of the rectum by Kraske's method, and I was therefore unfamiliar with its technique. The patient stood the operation very well. The amount of blood lost was only moderate. Three drainage tubes, one on each side and one posteriorly, were used. He made a slow but satisfactory recovery, the wound filling up by granulation and closing in a month. When he got out of bed his weight was 147 pounds; three months later it had risen to 185 pounds, the heaviest weight he had ever attained, and he felt as well as he ever did in his life. By September, 1892, nine months after the operation, his weight had reached 192 pounds. No incontinence of feces existed during the night, but in the daytime he had no satisfactory control. In addition to this there was such prolapse of the bowel, often amounting to six or seven inches, that he desired if possible to have the continuity of the bowel restored.

Second operation January 19, 1893. On inserting a finger of one hand into the natural anus and a finger of the other into the artificial anus, I found that there was less than a quarter of an inch, apparently, between the two fingers. I therefore attempted to use Murphy's anastomosis button at this point by cutting a small opening with scissors, but the

\* Read before the West Branch Medical Association, at Bellefonte, Pa., Jan. 12, 1897.

shank of the button was too short to allow of the penetration of the shank sufficiently to attach the two halves. Accordingly, after a somewhat persistent trial, I was obliged to abandon this method of anastomosis. I had carefully examined, as had also my colleagues, Professors Montgomery and Hearn, to see whether the peritoneal cavity was invaded by the opening just made. There being no evidence of its involvement, I drew a rope of iodoform gauze through the opening so as to keep it patent, with the intention of closing the artificial anus when the anastomosis was perfect. For two days everything went well, but on the third day his temperature rose to  $101.2^{\circ}$ , the following day to  $103.2^{\circ}$ . On the second day the iodoform gauze packing was removed and the bowel thoroughly douched with warm boiled water. There was no tenderness over the abdomen and no other symptom to indicate peritonitis until the third day, when there was very slight abdominal tenderness. His strength, however, failed rapidly and he passed into unconsciousness, dying on the fifth day. No discharge of pus had occurred from either the anal or the upper portion of the bowel.

The post-mortem showed adhesions of the coils of intestine and of the pelvic organs throughout the pelvis, and considerable pus from the site of operation upward into the sac of an old indirect inguinal hernia.

*CASE II.—Resection of six inches of the rectum by Kraskie's method to a point eight inches above the anus, preceded by an inguinal colostomy (Maydl's method). Eight days required to cleanse the bowel after the colostomy. Recovery. No recurrence for four years and two months. Social and business life unhampered; good control of feces. Rides a bicycle.*

Mr. B., Philadelphia, aged thirty-two, was first seen on June 10, 1892, in consultation with Dr. Wharton Sinkler and Dr. James C. Wilson. Weight in April, 1892, 175 pounds; best weight, 185 pounds. In 1876, when out camping, he lifted a heavy log, following which he had a hemorrhage from the bowels amounting to several ounces, but has had none since. No other ill effects followed, nor was he aware of anything having given way. His appetite had always been abnormally great and he indulged it without wise restraint, both as to the amount and character of his food. He had also been remarkably constipated. In the autumn of 1891 he noticed that there was considerable mucus in his stools. In December, 1891, he had an attack of grippe, for which, in January, 1892,

he went to Asheville, N. C. While there he had a severe attack of pain in the hypogastrium with diarrhea, and from that time on not only was there mucus but blood was observed almost daily, never however amounting to a hemorrhage. On May 30, 1892, he had such a violent attack of obstruction that his life was endangered, but it finally yielded to treatment. Another slight attack followed soon after. Hemorrhoids were also present and were very painful and tender, so that when I saw him it was not possible to introduce the finger to any considerable extent into the bowel, and I was unable to examine the rectum thoroughly. On July 16 he was etherized and three hemorrhoids were removed by the Paquelin cautery. I took advantage during this etherization to examine the rectum higher up. The moment that the sphincter was dilated a ring of teat-like processes appeared scattered over the rectum and merged at a higher level into a mass which there was no doubt was a carcinoma. Two of these processes were twisted off and were examined by Prof. W. M. L. Coplin. He reported that while the general structure of the specimen was that of an adenoma of the rectum, yet it pointed to a rapid degenerative process and for all practical purposes, therefore, was to be considered a tubular epithelioma. As the weather was very hot and he had lost much strength in consequence of it, we did not deem it wise to make a radical operation at this time. He was therefore given a bland, liquid, nutritious diet, and later a solid diet as his stomach would assimilate it, the bowels kept loose with laxatives, and as soon as he was able he was encouraged to get up and walk out of doors.

Early in August he went to the seashore, and returned early in October weighing 168 pounds, a gain of 23 pounds in ten weeks. On October 22 he was etherized for the purpose of a thorough examination, which was participated in by Drs. Sinkler, Wilson, Robert F. Weir of New York, and Robert W. Johnson of Baltimore, as well as myself. It was found that the tumor had grown considerably in size, but was still movable and not attached to the bladder anteriorly. It was situated about four inches above the anus. The finger was passed through the lumen of the growth with difficulty, therefore it was not certain that we could reach the upper border of it.

Operation November 5, 1892. A Maydl operation was done in the left inguinal region



on this date. The sigmoid flexure had a very short mesentery. Five hours after the operation he complained of pain due to the retention of flatus from a too acute kink over the glass bar. On attempting to pull down the upper part of the colon I found that it was very adherent, so that it required considerable force to loosen it. Three days afterward the sigmoid was opened by scissors, the bar being left in place till the end of a week. For eight days after this the lower bowel was washed out every day, both from the artificial anus and the natural anus. After the first two days the return liquid was entirely clear, yet on the fifth day a large movement occurred from the natural anus, showing that considerable fecal matter still blocked up the rectum below the artificial anus. Fifteen grains of ox gall were then thrown into the lower rectum from above, which broke up and dislodged considerable fecal matter.

Operation November 16, 1892. Ether; duration of operation, two hours. Four and a half inches of the coccyx and sacrum were removed, going up to the third sacral foramen. The lower end of the spinal canal was opened and a small amount of cerebro-spinal fluid escaped. A catheter was held in the bladder to define the limits both of the bladder and of the urethra. The peritoneum was opened, as it was impossible to draw down the bowel without doing so, but was immediately fastened to the wall of the rectum by a continuous silk suture. The rectum was divided two inches above the anus and again at a point eight inches above the anus. The stump of the rectum was then attached to the end of the sacrum, two large drainage tubes were inserted, one on each side, and the anterior wound was packed with iodoform gauze. I did not suture the two ends of the bowel together—though mechanically this would have been possible—because the operation had already lasted two hours, his condition was not very good, and independent of this I was not much in favor of such anastomosis. He made a slow but sure recovery, the wound closing entirely at the end of about six weeks. The tumor was examined again by Professor Coplin and pronounced to be a tubular epithelioma.

Four years and two months have elapsed since the date of the operation. The patient has been in such good health that his weight has exceeded 200 pounds. He was abroad for over two years, traveling in various parts of Europe along the Mediterranean, in Egypt, etc., and entering freely into all

his ordinary social relations. His latest achievement has been to ride a bicycle (with a Christy and not a perineal leather saddle); which he has done without any trouble. The inguinal anus has been so comfortable that he has not cared to have any attempt made to re-establish the continuity of the bowel and close the inguinal anus.

His mode of dressing the openings is as follows: First, the sacral anus: as some mucus escapes from this he applies two squares of absorbent cotton and over that a sheet of wood-wool, retaining them in place by a T-bandage. Secondly, the inguinal anus: three pads of absorbent cotton to the right, left, and below the opening, then another pad over the whole, then rubber dam, another layer of cotton, and a binder.

At times the bowel protrudes from the sacral anus from two to six inches, but he has no difficulty in replacing it. His control over his movements is good. What is curious, in view of the absolute severance of the bowel at the inguinal anus into an upper and lower part, is that about every two weeks a very small but positive fecal movement occurs from the sacral anus; evidently a small amount of the feces, which escapes from the upper colon at the inguinal anus, is forced back by the pads into the lower opening of the colon and finally escapes, as stated, through the sacral anus.

CASE III.—*Amputation of nine and a half inches of the rectum by Kraske's method, preceded by an inguinal colostomy (Maydl's method). Recovery. No recurrence after four years. Excellent control over evacuations. Social and business life unhindered. Can ride a bicycle.*

Mr. F. was kindly brought to me by Dr. H. W. Elmer, of Bridgeton, N. J., on December 14, 1892. Aged forty-six; best weight 185 pounds, present weight 152 pounds. Two years before he noticed a fissure of the anus, which was followed by hemorrhage and constant discharge. On examination I found a distinct ulcer on the left side of the anus about one inch in diameter and extending upward. From that a very widely spread carcinomatous growth extended at least three to four inches up the bowel. He also had a left oblique inguinal hernia.

Operation January 6, 1893. I did a Maydl operation in the left inguinal region, and two days later opened the bowel with the Paquelin cautery, dividing it completely in two down to the bar. I then systematically washed out the rectum and colon both from the artificial and the natural anus.

Operation January 18, 1893. Kraske's operation was done, the incision passing from the left antero-posterior spine to a point an inch in front of the anus and encircling that opening. A bougie was inserted into the bladder, and when I separated the rectum in front I found I had laid bare and recognized in the various steps of the operation the bulbous portion of the corpus spongiosum, the membranous urethra, the prostate gland, and a considerable portion of the wall of the bladder. The peritoneum was opened, but sutured soon afterwards to the anterior and lateral walls of the rectum. No enlarged glands were found. Nine and a half inches of the bowel were removed and the stump of the rectum attached to the end of the sacrum. A drainage tube posteriorly and iodoform gauze anteriorly were placed. No rise of temperature followed the first operation. After the second operation the temperature rose from the second to the fifth day to as high as  $102.4^{\circ}$ , but reached the normal on the ninth day. The stitches were all removed at the end of eight days. On the fifteenth day he sat up, and at the end of the fifth week went home. No irritation of the bladder followed.

Dr. D. Braden Kyle examined the specimen and reported that it was an epithelioma.

Present condition, December, 1896, after four years: A very moderate prolapse of the bowel takes place, especially in the summer-time. When that occurs he is obliged to stop and rest. I saw him December 21, 1896, within a month of four years after the operation. His weight is 185 pounds. He is in vigorous, robust health, and has been ever since the operation. He is one of the most active business men that I know. He comes frequently to the city in the morning in order to make purchases for his several stores, and returns in the evening after a hard day's work. Ordinarily he has two voluntary movements, one at night and one in the morning. If his bowels are loose he is obliged to give very careful attention to himself, and sometimes is unable to attend to business satisfactorily. This is rarely the case, and commonly one would never know that there was anything abnormal in his person or his history. He usually defecates standing. His observations in regard to the flow of mucus from the sacral anus and his method of dressing the wound, with which he has had a good deal of experience and in which he has shown a good deal of ingenuity, are as follows:

"The amount of mucus depends altogether

upon the amount of irritation, and that generally upon overexertion or temporary ill health. It is a wonderfully sympathetic part of my anatomy and is always affected by a bad cold with any accompanying coughing and sneezing, even the dynamic of nose-blowing finding a resultant there. Riding in a wagon on a rough road hurts it very much. I have tried the bicycle, but have not yet learned to ride it. I have succeeded in so arranging the pad of my bandage that all flow of mucus is absorbed, one pad lasting if necessary for twenty-four hours. The inguinal anus gives me no trouble beyond the necessary inconvenience attending the discharge of fecal matter, and that has been reduced to a minimum. Occasions of being caught so that I am obliged to run to cover are very few and far between, and it is getting to be the rule that I require no attention between rising and retiring.

"I dress the anus as follows: a thin layer of antiseptic wool, another of absorbent cotton about the size of a sheet of paper (six by ten inches), a piece of muslin of the same size, then another layer of cotton still larger, another of muslin, then a sheet of rubber dam and a bandage of heavy unbleached muslin is an absolute defense against any happening excepting genuine diarrhea, and that has to be very bad to get away with me. If a movement occurs that is formed and I can attend to it soon, frequently only the first or second layer needs to be discarded. At night there is frequently very little mucus. My truss is a powerful safety guard, holding the lower edge of the bandage tightly to my body, preventing the escape even of very thin fecal matter, and I do not see how I could get along without it even if there were no hernia. My eating habits are methodical. I make it a rule to eat stewed or raw fruit for supper and drink somewhat freely. A cup of strong coffee on getting out of bed in the morning or before brings everything down and out in good shape within an hour, and then I dress and go about my business with serene confidence."

(This observation as to the truss would suggest that in such cases a dummy truss might be used to advantage.)

His method of dressing the sacral anus is ingenious and might prove useful to others. With a view both to absorbing the mucus and preventing the prolapse of the bowel he uses an ordinary metal shoe-horn, the convex surface turned next to the skin and narrow end forward, and covered as follows: a piece of

canton flannel four by six is folded lengthwise, the corners turned, and the shoe-horn slipped in between the two folds and fastened by safety-pins; a second layer of canton flannel, then a double layer of absorbent cotton slightly wider than the flannel, and a layer of globe antiseptic wool about an inch wider than the absorbent cotton. To prevent chafing, some aristol is spread on the surface of the sterilized wool. All of these layers of cotton, wool and flannel go between the shoe-horn and the skin; the whole is then kept in place by the T-bandage already mentioned.

CASE IV.—*Five inches of rectum amputated by Kraske's method, preceded by an inguinal colostomy (Maydl's method). No return after four years. General condition satisfactory.*

Geo. M. R., aged fifty, was admitted to St. Agnès' Hospital November 15, 1892, at the instance of Dr. John J. Black of New Castle, Del. I publish the case by the kind permission of Dr. A. W. Ransley, with whom I was associated in its management. He had had dysenteric symptoms for four months. An extensive, very soft, bleeding carcinoma of the rectum was found by touch. Operation December 3, 1892. An inguinal colostomy was done by Maydl's method. The bowel was opened on the second day. Second operation December 15, 1892. Amputation of the rectum was done, the sacrum being divided transversely between the second and third sacral foramina. About five inches of the bowel were amputated, and the upper end sutured to the end of the resected spine.

Present condition: There is no indication of a return of the disease after four years. The inguinal anus does not annoy him seriously, but he is somewhat reluctant to go into society. He has on an average two movements a day, morning and evening; has no control over them, but is aware of them before they pass. There is a moderate protrusion of the bowel at the inguinal anus, two and half inches, and about three inches from the sacral anus. He is not annoyed by the amount of mucus discharged from the bowel. His general health is first-rate.

Dr. John J. Black, who kindly sent him to me at the hospital, says that "to-day he would pass for a man hale and hearty, forty years of age; eats everything, and plenty of it. No irritation from abrasions of the skin."

CASE V.—*Amputation of six and a half inches of the rectum by Kraske's method, preceded by inguinal colostomy (Maydl's method);*

*bowel not fully cleansed after seventeen days' constant washing; spinal canal opened. Recovery.*

Joseph A., aged forty-six, Altoona, Pa., entered the Jefferson Hospital October 13, 1893. His family history is good. Up to January, 1893, he had always been well, but at that time he noticed a slight amount of blood in the stools. This continued almost all the time up to his admission to the hospital. Constipation of late had been very marked; the fecal masses were diminished in diameter until they had become ribbon-like. He had very little pain, but great discomfort in the rectum; no vomiting; loss in weight fifteen pounds. On examination I found a rather slender man with a moderately cachectic look. Specific gravity of urine 1.023, no albumen, a slight trace of sugar. By rectal touch, an inch above the anus, a hard irregular mass was immediately encountered; the fingers could not be passed through it. I found also some hemorrhoids. By abdominal examination the descending colon and sigmoid flexure showed a row of irregular lumps, whether hardened feces or extension upwards of the disease I was uncertain. I advised an exploratory operation in the left iliac region to determine, first, the nature of these masses, as a differentiation between scybala and cancer could not be made by means of high injections on account of the obstruction by the disease; secondly, if they were found to be scybala, that a Maydl operation should be done immediately and the extent and character of the rectal growth be determined; thirdly, if they were found to be nodules of disease, that a right colostomy be done. Left inguinal colostomy by Maydl's method was done October 15, 1893. The hardened masses were found to be scybala. The bowel was opened twenty-four hours after the operation by a longitudinal incision by the Paquelin cautery. The bar was removed at the end of a week. From October 16, when the bowel was opened, to November 2, a period of seventeen days, the bowel was washed out both upwards and downwards toward the stomach and toward the rectum by copious enemata, sometimes of warm water and sometimes of ox gall, with the intention of absolutely cleaning out the bowel. Injections were also made from the anus, but very small amounts of fluid could be passed in in this way. I appointed the Kraske operation for the 28th of October, twelve days after the opening of the artificial anus, but on that morning, in spite of all the washing out already done, he was taken with diarrhea, during which an

immense quantity of feces poured out of the artificial anus, the oozing being almost continuous for about sixteen hours. The fecal torrent having then been arrested and the bowel apparently clean, I did the Kraske operation on November 2, 1893. The coccyx and two and a quarter inches of the sacrum were removed; the prostate and part of the bladder were uncovered in the dissection. I attempted to remove the diseased portion without opening the peritoneum, but found it impossible to get above the upper edge of the disease. Accordingly the peritoneum was opened, the rectum drawn down, and the peritoneum immediately sutured to the anterior wall of the rectum, thus closing the cavity. In order to obtain access to the rectum I found it necessary to remove three-quarters of an inch more of the sacrum, making three inches in all of the sacrum and coccyx. The spinal canal was opened by the removal of this portion of bone. When doing this, at the left edge of the coccyx I discovered a considerable area of the bone so softened that the finger-nail could easily break it down. All of this left side up to the border of the great sacro-sciatic foramen was then removed by forceps and gouge. No enlarged glands were found in the meso-rectum. The anal portion of the bowel which was normal was so small that I removed this as well as the diseased part. The portion removed measured six and a half inches. The stump of the rectum was attached at the end of the resected spine.

The hemorrhage was only moderate. Iodoform gauze was packed posteriorly and anteriorly to the rectum. The operation lasted an hour and three-quarters and the patient showed marked shock, but reacted very well. To my surprise, on the second day after the operation, in spite of all the washing out begun nineteen days before, a very large amount of fecal matter was discovered impacted in the rectum and had to be removed mechanically, after which a considerable amount was spontaneously evacuated during this and the next day. On the sixteenth day the patient sat up, and on the twenty-fifth day left for his home. His highest temperature was 102°, and the normal was reached at the end of a week. Except where the gauze drains were placed, absolute union by first intention took place. No later history has been obtainable.

CASE VI.—*Cancer of the rectum, anus, and vagina. Amputation of six inches of the rectum by Kraske's method with a V-shaped piece of the recto-vaginal septum, preceded by an inguinal*

*colostomy by Maydl's method. Death in thirteen hours from shock.*

Mrs. P. M. was first seen June 10, 1893. Aged thirty; married five years, three children. Before her marriage she suffered from prolapse and retroversion of the uterus and moderate prolapse of the bowel. Two years and a half previous to my seeing her she noticed a very slight pinkish discharge from the rectum, but had no pain in defecation until sixteen months subsequently. Since that time the pain had gradually increased until it became excessively severe, keeping her in misery for a number of hours after each movement. During this same time the fecal masses had diminished in diameter until they became the size of the little finger. In December, 1892, a small portion of the growth was removed by another surgeon. The growth was at that time thought to be benign, but the microscopical examination showed it to be malignant. I etherized her in order to make a careful examination. Nothing abnormal was found in the abdomen. At the anus there was an ulcerated mass entirely surrounding the orifice, with outgrowths of an inch or more in length. The introduction of the finger showed a hard nodular growth surrounding the rectum. By some pressure the finger could be forced through the growth and detect its upper limit. The recto-vaginal wall was partly involved on its rectal aspect up to the junction of the vagina and uterus, but the mucous membrane was not involved, excepting just at and above the anus.

June 17, 1893, Maydl's operation was done. There was some difficulty in finding the colon, which was displaced far to the right. The colon was stitched at each end of the incision. The bowel was opened three days later by the Paquelin cautery, dividing it completely to the bar.

June 28. After having daily washed out the lower bowel through the artificial anus with ox gall, boiled water, boric acid, etc., a Kraske amputation of the bowel was done. In separating the soft parts from the sacrum and coccyx posteriorly I was struck with the advisability of not going too close to the bone, so that the vessels which bled freely could be caught much more easily than when they were severed very close to the sacrum.

The sacrum was resected at the level of the third sacral foramen. No enlarged glands were felt in the meso-rectum. The rectum was dissected loose chiefly by the finger, the levator ani being divided by knife and scissors. The incision was then carried around

the anus and sufficiently far into the vagina to include a generous healthy portion, as well as the diseased portion of the septum. With one finger in the vagina it was easy to ascertain the limits and relations of the diseased portion to the rectum, and a V-shaped piece was removed, its apex reaching nearly up to the uterus. The peritoneal cavity was opened, the rectum drawn down, and the peritoneum then stitched to the anterior and lateral borders of the rectum. Six inches of the rectum were amputated. The posterior wall of the vagina was now united by a continuous Lembert suture, approximating the raw outer surfaces of the vaginal wall on each side. Drainage tubes were placed at the anterior and posterior extremities of the wound, which otherwise was closed. The operation lasted nearly an hour and three-quarters. The patient was in marked shock. Before the operation she had had  $\frac{1}{4}$  grain of morphine and  $\frac{1}{16}$  grain of strychnine, and  $\frac{1}{16}$  were administered during the operation. During the night the same medication was continued as needed, together with stimulants and external heat. Her temperature barely rose to  $100^{\circ}$ , but her pulse never became perceptible, and she died suddenly at 3 A.M. apparently from heart clot, thirteen hours after completion of operation.

**CASE VII.**—*Cancer of rectum. Five inches of the rectum removed from four to nine inches above the anus by Kraske's operation without prior colostomy. Death after fifty-six hours from uremia.*

Samuel S., aged forty-one, was sent to the Jefferson Hospital by Dr. Stahren March 12, 1896. Family history excellent. He was a moderate drinker; denied syphilis. A year previous he observed a burning sensation in the rectum during defecation. This increased in severity till it became quite painful. After a considerable time he began to pass bloody stools, lost his appetite, and not infrequently had nausea and vomiting. The bowels alternated between constipation and diarrhea. He had lost about ten pounds in weight. On admission his temperature was  $97.6^{\circ}$ ; pulse 98, full and of high tension. The arterial coats were markedly thickened; aortic sounds slightly accentuated. Urine 1.022, no albumen or sugar; urea 2.2 per cent. About three inches above the anus an indurated ulcerated tumor was felt involving the entire circumference of the rectum and constricting it.

Operation March 18, 1896. Owing to his diseased arteries I hastened the operation as much as was possible, and finished it in an hour and a quarter. Four and a half inches

of the coccyx and sacrum were resected to the level of the third sacral foramen. The rectum was separated from the adjacent parts without difficulty. The disease began about four inches above the anus, and the part resected was five inches long. No glands were felt in the meso-rectum. The peritoneum was opened and immediately fastened to the peritoneal surface of the rectum. The stump of the rectum was then fastened at the end of the resected sacrum. The wound became smeared from the fecal matter which was discharged from above the disease, but great care was taken to prevent infection by packing one part of the wound with iodoform gauze while working at another part, and by careful washing with bichloride of mercury afterward. Only about a dozen ligatures were needed. An iodoform gauze drain was passed through the anal segment and the anus, another behind the normal anus, and a third was pushed up into the bowel so as to prevent any fecal infection. It was not possible to approximate the two ends so as to restore the continuity of the bowel. During the night after the operation the temperature rose to  $100^{\circ}$  and he became delirious, with also a very marked diminution in the amount of urine. In the first twenty-four hours after the operation he only secreted  $13\frac{1}{2}$  ounces of urine; in the second twenty-four hours only  $3\frac{1}{2}$  ounces; and in the next eight hours, at the end of which time he died, no urine whatever was secreted. By an unfortunate misunderstanding the urine was not examined. Every means were taken to increase the action of the kidneys, but he died from uremia in spite of them. Dr. Kyle reported that the specimen showed the growth to be a tubular epithelioma.

**CASE VIII.**—*Amputation of two and a half inches of the rectum by the perineal route, with removal of the coccyx (Kocher's method), but no prior colostomy. Artificial sphincter attempted by Gersuny's method followed by infection. Recovery.*

Mrs. B., Vinemont, Pa., aged forty, was admitted to the Jefferson Hospital February 13, 1894. Her mother died of tubercular laryngitis. There is no family history of cancer. For two years she had a sense of rectal bearing down and tension, and occasionally passed blood by the bowel. The pain in the rectum was more severe after exercise. The bowel movements were obstructed. She had no nausea or vomiting, but had lost weight till she now weighed only 103 pounds. Urine normal.

On examining the rectum I found a very distinct nodular growth which began at the anus, but extended only an inch above it. I therefore did no preliminary colostomy, but on February 16, 1894, proceeded to the amputation of two and a half inches of the bowel. The coccyx was removed and the rectum rapidly detached both from the bones behind and the vagina in front. One enlarged gland was found in the post-rectal space. The peritoneum was exposed, but not opened. In this case, in order to obtain an artificial sphincter, I adopted the method of Gersuny, twisting the bowel 270 degrees until there was considerable resistance to the introduction of my finger. It was then sutured to the surrounding skin. Two days after the operation her temperature rose to 102°; the packing which had been put at the anterior extremity of the wound was removed, and I found that feces had escaped in the intervals between the stitches and infected the wound. One stitch was cut to allow of more efficient drainage and the parts then washed out carefully. After this she made a very good recovery and went home March 8, 1894. Dr. D. Braden Kyle reported that it was an epithelioma. I have written to her since then, but have received no reply.

CASE IX.—*Amputation of three inches of the rectum by Kocher's method. Recovery.*

M. D. K. entered the Jefferson Hospital February 14, 1893. Up to 1878 he had been in good health. He was an enlisted soldier at that time and much exposed to the weather, and suffered much from diarrhea and hemorrhoids. The latter were operated on in the post hospital October, 1878, and several times since then. He, however, was never free from the hemorrhoidal trouble, and finally was discharged from the service in 1891. In March, 1892, the hemorrhoids were again operated on, but he has never been well since. He suffered from a constant burning pain in the rectum, and passed at times small amounts of clotted blood. Defecation was very painful; there was no trouble with the urinary organs. On examination a considerable ulcerated surface was seen and felt surrounding the anus, with a mass of infiltrated and hard nodular tissue extending two inches up the rectum. The slightest manipulation caused bleeding.

Operation March 1, 1893. Three inches of the rectum were amputated and the stump attached to the skin of the perineum. The coccyx was removed to give access to the mass, but none of the sacrum. The peri-

toneal cavity was not opened. The wound healed by first intention, the stitches being removed in a week. The highest temperature was 102°. Three weeks after the operation he went home entirely well. No later history has been obtainable.

CASE X.—*Amputation of four inches of the rectum by the perineal route without prior colostomy. Recovery.*

Mrs. X. The notes of this case are unfortunately lost, and I can only give a meagre outline. The case was one of carcinoma of the rectum involving the anus, which I operated on in the Jefferson Hospital in 1890. About four inches of the rectum were resected without removing the coccyx or opening the peritoneum. The patient made a prompt recovery. Of her condition since then I have been unable to learn anything.

CASE XI.—*Amputation of three inches of the rectum by the perineal route; recovery. General health and business activity entirely restored. No return in four years, when he died from an acute diarrhea.*

Mr. McK., aged fifty-four, was seen in consultation with Dr. H. G. Hill February 1, 1891. Prior to seeing Dr. Hill he had thought he had hemorrhoids for some years. On examination Dr. Hill immediately detected the growth—epithelioma of the anus and rectum for two and a half inches.

Operation February 6, 1891. Three inches of the lower end of the bowel were amputated, the peritoneum not being opened. No bone was removed. A sound in the bladder was useful as a guide. The end of the bowel was sutured to the skin, a drainage tube being introduced on each side of the ischio-rectal fossa and retained for three days; highest temperature 101°, which was not as high as it sometimes had been before the operation; primary union, except at a very small point at the anterior portion of the wound.

Final result: He had very good control over the contents of the rectum except when the bowels were loose, which did not occur often. He gained in weight and his general health was excellent, so that he attended to an active business, but suffered from repeated attacks of tic douloureux. I saw him occasionally for two or three years.

January 25, 1895. I have just learned that he died a few days ago of acute diarrhea under the care of a homeopathic physician. There was no return of the disease so far as I could learn, although there was only lacking a month of four years since the operation.

CASE XII.—*Amputation of two and a half inches of the rectum and anus by the perineal route. Recovery.*

B. R., aged forty-three, entered the Jefferson Hospital March 2, 1891. Family history good. For fourteen months he had had severe pain in defecation. Operation March 5, 1891, two and a half inches of the rectum were amputated, including the anus. The peritoneum was not opened. The end of the bowel was sutured to the perineum. Healing by first intention. A recent letter has been returned with information that he is probably dead.

CASE XIII.—*Amputation of five inches of the rectum by the perineal route without prior colostomy. Peritoneal cavity not opened. Artificial sphincter by Gersuny's method followed by infection. Recovery.*

Mr. R., aged thirty-three, Philadelphia, Pa., was admitted to the Jefferson Hospital May 22, 1894. Family history good. Ten years previously he had malaria and dysentery, and three years later gonorrhea. Four years previous to admission he received a bad bruise in the region of the anus by sitting down upon the knob of a faucet. A year prior to this accident he noticed that his stools were gradually becoming smaller in diameter, and once in a while he noticed clots of dark blood and mucus, all of which were attributed to hemorrhoids. The pain in defecation gradually increased. Within the last year the fecal masses had been reduced to the size of a lead pencil, and he had had alternate constipation and diarrhea. On examination I found a well nourished and apparently healthy man, with a fair appetite, suffering no pain excepting on defecation. By rectal touch an evidently malignant growth was felt, beginning just within the anus and at a point two and a half inches above the anus; the stricture was so tight as not to be permeable by the finger. Urine negative. For a week he was in bed, during which time the bowels were carefully evacuated and his diet regulated.

Operation May 24, 1894. An elliptical incision was made around the anus, extending posteriorly to the tip of the coccyx. The rectum was then separated partly by scissors and partly by blunt dissection until healthy tissue was reached. The dissection was very difficult on account of the adhesions, but was facilitated by splitting the rectum and carrying the left forefinger up into the gut. It was not necessary to remove the coccyx. In the anterior part of the wound were dis-

closed the bulb of the corpus spongiosum, all of the prostate gland, and a considerable portion of the bladder. Although five inches of the rectum were resected the peritoneal cavity was not opened. The stump was twisted 180 degrees and fastened to the skin by very close stitches. In front of the rectum and behind it gauze packing was inserted. The calibre of the rectum itself was also packed with a considerable pledget of iodoform gauze to prevent the escape of fecal matter and infection. The stitches gave way and infection of the wound took place. The temperature, which up to that time had been about 100°, on the twelfth day rose to 102.4°, but fell to the normal in two days. He was discharged from the hospital on July 3, the entire wound being healed excepting a small sinus in front of the anus.

March 1, 1897. Two years and ten months have now elapsed since the operation, and he writes me that there is no evidence of any recurrence, that he has "fair control over his movements and always has warning at time of stool, of which he has about two or three a day." There is no protrusion of the bowel and only a trifling mucous discharge. His general health is excellent.

CASE XIV.—*Cancer of anus and rectum. Removal of V-shaped portion of bowel, including the sphincter, by the perineal route. Recovery.*

Joseph N., aged twenty-nine, was admitted to the Jefferson Hospital March 10, 1896. His family history is good. Two years prior to admission he had a fistula *in ano*, which was operated on, but left an ulcer which never healed. On examination I found a very marked indurated chronic ulcer of the rectum just within and partly involving the sphincter in the median line posteriorly.

Operation March 11, 1896. I removed a V-shaped portion of the anus and rectum, the apex of the V being an inch and three-quarters from the anal margin. The portion of the sphincter excised was nearly an inch. The mucous membrane was stitched together, special care being taken to see that the ends of the sphincter muscle also were well approximated. Before the operation a tampon of iodoform gauze was pushed up into the rectum to keep the wound clean, and was left there for three days after the operation. A small amount of opium was given daily to constipate. March 30, 1896, he was discharged almost well. The sutures had cut out to a small extent and produced a little local raw surface. He is still living.

Dr. D. Braden Kyle examined the specimen and pronounced it a squamous-celled epithelioma.

*CASE XV.—Resection of four inches of the rectum and sigmoid flexure by abdominal section. Approximation by Murphy's button only partially practicable by reason of the silk thread catching in the thread of the screw. Appendix also removed. Sloughing of the bowel. Death on the third day.*

Mrs. W., aged thirty-three, was kindly sent to the Jefferson Hospital by Dr. Vaughan, of Middletown, Del., November 19, 1894. Her maternal grandfather died of cancer of the stomach; otherwise her family history was good. She had not lost weight. She always enjoyed good health till September 1, 1894, when she had an attack of cholera morbus. This was followed by what was thought to be an appendical abscess, as she passed considerable pus by the rectum. She had been very much constipated ever since, and for two weeks had no movement of the bowels. There had been considerable nausea and vomiting, not fecal in character. She suffered from much flatulence and tenderness, especially in the right iliac fossa. Her temperature had been normal or even subnormal constantly, excepting for two days, when it rose to 100.6°.

A careful examination of the rectum gave no information. The abdominal wall was so thin that the coils of intestine and their active peristalsis were easily seen. No tumor could be discovered anywhere. Various purgatives and enemata were tried for ten days in order to unload the bowels; high enemata were then used by Hegar's method. The largest amount which could be injected was a quart; more than this caused considerable pain. This however at last enabled me to discover the source of the trouble. The enema by this method with the pelvis raised forced from the pelvis into the abdomen a lump about two inches in diameter. The tumor was movable; it was just above and to the left of the pubes. By various means the bowels were gradually unloaded, but the tumor still remained.

Operation December 7, 1894. In view of my ability to displace the tumor from the pelvis into the abdomen, I determined to operate by way of the abdomen. This was opened in the middle line and the appendix first explored. This was found to be nearly five inches long, very much twisted, and completely filled from one end to the other with a row of oval fecal concretions. Deeming this

a very probable future danger the appendix was removed. The sigmoid flexure was very long, the loop reaching over to the right iliac fossa; its walls seemed to be markedly thickened. Passing the hand into the pelvic cavity I was able to draw out the tumor already alluded to. This was a puckered mass on the anterior side of the colon and was so low down that it was with great difficulty that it could be drawn out of the pelvis sufficiently for operation. Below the tumor, the sigmoid and rectum were narrowed, but from the tumor upward for about fifteen inches the whole of the descending colon and the sigmoid flexure were thickened, especially at the longitudinal bands. I was quite uncertain whether the whole mass was cancerous or whether the thickening might not result from the former inflammatory attack, but as I found the mesenteric glands enlarged I thought it wise to excise the tumor and the adjacent most markedly diseased colon. Four inches of the bowel therefore, including the nodular mass, were resected, a small V-shaped portion of the mesentery being taken out, the apex of which was only about an inch from the colon, and an end-to-end anastomosis was then effected by a Murphy button. The lower half of this fitted into the calibre of the bowel rather snugly, but the upper end of the bowel was so dilated and thickened that there was great difficulty in inverting the end satisfactorily. Moreover, when I attempted to approximate the two halves of the button, after they had approached each other about half the proper distance, I found that I could not approximate them any further. Accordingly, I surrounded the button with two rows of Cushing's right-angled sutures. Dr. D. Braden Kyle, to whom the specimen was given for examination, reported that it was a tubular epithelioma.

Immediately after the operation fecal movements began. In the first twenty-four hours she had nine, not diarrheal, but of soft feces, and in the next twenty-four hours there were seven movements, and a few more afterwards. On the evening of the second day when I saw her she was bright and cheerful, her temperature was normal, her stomach had quieted entirely, and there was no pain. At 10 P.M. she was suddenly seized with violent abdominal pain, passed into collapse, and died at 10 A.M. on the third day.

The autopsy showed that the stitches had held, but that an inch and a half of the upper dilated end of the bowel had sloughed



and caused perforation. On removing the button I found the obstacle to complete approximation of the two halves lay in the fact that one end of the silk ligature around the collar of the button had been caught between the two tubes as one was thrust into the other, and when it was drawn taut no further approximation of the halves could be made.

Abbe (*Annals of Surgery*, January, 1895, p. 71) has reported a similar case. The unexpected difficulty that I had points to the fact that we ought to see that the two ends of the silk are cut short enough not to catch in the thread of the screw.

CASE XVI.—*Inoperable carcinoma of rectum. Lumbar colostomy. Death in about two years.*

John W. F., of Washington, D. C., was first seen at the request of Dr. S. Weir Mitchell June 8, 1885. Six weeks before he thought he had piles, as a small amount of blood was seen in his movements. The fecal masses were of good size. He had bearing down pains, especially marked in the sacral region, with a sense of fulness in the rectum, though there was little or no pain. Four inches above the anus posteriorly a tumor was felt. It stretched two-thirds around the rectum and was firmly attached to the sacrum; was hard, irregular, and nodulated. I regarded the case then as inoperable. In about five months the cancerous circle was completed. A year later a lumbar colostomy was done by another surgeon. This relieved him greatly. He died about two years later.

CASE XVII.—*Inoperable cancer of the sigmoid and rectum. Right lumbar colostomy. Peritoneum opened; great difficulty in deciding upon which was the colon and which the small intestine. Operative recovery; death about a year later.*

Mrs. W., aged sixty, wife of a physician living in Minnesota, consulted me in the winter of 1887. She had suffered for nearly a year with constipation and diarrhea, with diminished fecal masses and a great deal of pain in the left inguinal and sacral regions. She had lost considerably in weight. The instant that the fingers were placed upon the left lower abdomen, just at the upper border of the pelvis, a long sausage-shaped tumor was found, the lower end of which was lost in the pelvis, the upper end reaching a little above the anterior superior spine. By the rectum the finger could just touch the lower border of the growth. The diagnosis was evident and no radical operation possible. Accordingly, I did upon her a lumbar colostomy, in the right lumbar region. I was unable to find the colon

without opening the peritoneum. When I opened it two coils of intestine presented themselves. I was utterly unable to distinguish at first which was the colon and which the small intestine. I was unable to recognize any longitudinal bands in the colon *in situ*, and the colon could not be drawn out sufficiently to enable me to see them. Finally, as the result proved, I decided on the right one, more I am bound to say by good luck than by good judgment. She died about a year later. The difficulty which I had in this case decided me positively, therefore, to abandon lumbar for inguinal colostomy. In addition to this the advantages of inguinal colostomy, which I think are very many, almost decided me independent of the difficulties experienced in this case.

CASE XVIII.—*Inoperable cancer of the rectum. Lumbar colostomy. Recovery. Death twenty-four days after operation from acute entero-colitis.*

George C., aged forty, Beverly, N. J., was kindly referred to me at the Jefferson Hospital by Dr. J. B. Walker, of Philadelphia, on May 11, 1891. Best weight 169 pounds, in August, 1890; present weight 137 pounds. His history showed chronic constipation. In August, 1890, he consulted a physician, who said that he had trouble in the sigmoid flexure. When Dr. Walker first saw him just prior to his admission to the hospital he discovered a lump at that point. The tumor was the seat of a dull ache, with shooting pains down the left leg.

On examination a tumor was felt in the left iliac fossa, and when the finger was passed into the rectum the tumor was felt about two and a half inches above the anus; reciprocal pressure could be felt both above and below. The disease being so very extensive I deemed it inoperable and advised a left lumbar colostomy. This was done on May 26. The bowel was not opened for three days, as there was nothing urgent about the case. He left the hospital June 5 entirely recovered. A very sudden change of the weather took place the day he left the hospital, and he apparently took cold, fell severely ill of an entero-colitis, and died two weeks later.

CASE XIX.—*Inoperable cancer of the rectum. Inguinal colostomy by Maydl's method. Bowel opened in six hours; great relief. Death from exhaustion thirty-one days after the operation.*

Miss C. B. was seen in consultation with Dr. G. R. Morehouse February 17, 1893. There had been absolute obstruction for

eleven days, excepting that the enemata used had brought away small masses of fecal matter. The abdomen was so much distended as to interfere with respiration, and there was every evidence of impending speedy dissolution. A small bed-sore existed over the sacrum, and the patient was emaciated to the last degree. Rectal touch showed that the rectum was full of solid feces, and the tip of the finger discovered a cancerous mass. As she had no power to expel the contents of the rectum they were removed piecemeal by the finger and a spoon-handle. This being done, the hard mass was felt as a nodular growth, the mouth of which was so softened that the disease could be broken down by the finger-nail. Evidently radical treatment by excision could not be entertained for a moment; a palliative operation would be all that could be done. Accordingly, the same day a Maydl operation in the left iliac fossa was done in a very few minutes. Six hours after the operation the bowel was opened with the Paquelin cautery without hemorrhage. The adhesions were perfect. Small quantities of gas and feces were passed in the next twenty-four hours, with great relief. The subsequent comfort that she had entirely warranted the operation. Two weeks after the operation I removed the glass bar and tied the mesenteric portion of the bowel by a rubber band. Forty-eight hours later I completed the division by the scissors. The feces between the artificial anus and the rectal tumor were partly voided through the artificial anus, but most of them mechanically by the finger. Her strength failed gradually, and she died from exhaustion March 20, thirty-one days after the operation.

*CASE XX.—Extensive carcinoma of rectum and colon. Palliative right inguinal colostomy (Maydl's method). Recovery from operation. Death from exhaustion fifteen days later.*

Mrs. D., aged forty-four, was sent to the Jefferson Hospital January 15, 1895, by Dr. R. Wallace of East Bray, Clarion Co., Pa. She ceased menstruating one year prior to this date; was always in good health until two years before, when she had what was thought to be a fissure of the anus. On dilating this, a stricture of the rectum was found. Her health had gradually failed, and in the last two months she lost eight to nine pounds; color sallow; appetite poor; pain on defecation intense and continuous. The pain extended over the entire sacral region. On examination I found that as far as the finger could reach there was an extensive carcinoma

of the entire bowel, involving the whole of the recto-vaginal septum, but not the vagina itself. Abdominal palpation revealed no tumor. Her general health was so poor and the disease so extensive that I very quickly made up my mind that nothing could be done excepting in the way of palliation. Accordingly, on January 23, 1895, I opened the abdomen in the left region to determine whether the colon was healthy, and if so to make an artificial anus by Maydl's method. As soon as the cavity was opened I found that the descending colon was studded with growths of a size somewhat smaller and larger than a pea. The wound was immediately closed and the abdomen opened on the right side, where the Maydl operation was done. Three days later the bowel was opened transversely to one-third of its circumference by scissors, and some vessels tied. A week later the glass bar was released by cutting through the remaining portion of the bowel. My object in waiting a week was to allow of such firm adhesions that there would be no danger of the bowel falling back into the abdomen. The operation gave her great relief, but her strength failed very rapidly, and she died on February 7, 1895, fifteen days after the operation. Before the operation her temperature had risen to 103.2°, but immediately afterward fell to 100° and below. I made some cultures from the abdominal cavity, and these Dr. Kyle reported showed both staphylococcus and the bacillus coli communis, though there was no suppuration either before or after the operation. The infection may have been an accidental one at the time of operation, but every possible means were taken to prevent it.

*CASE XXI.—Inoperable carcinoma involving the caput coli, ileum, sigmoid flexure, and rectum. Celiotomy. Artificial anus made in the ileum by Maydl's method gave relief and lowered the fever. Death on fifth day.*

Mrs. G. B. R. was first seen in consultation with Dr. Eleanor C. Jones March 20, 1896. Aged thirty-seven; present weight 95 pounds; best weight 110 pounds two years ago. Her family history was excellent. On September 1, 1895, she first observed distinct pain in the rectum. In the course of a couple of months she observed that the feces were streaked with blood. No diminution in the size of the fecal masses had been observed. On October 30, 1895, she was examined by Dr. Broomall and Dr. Jones together, and they observed nothing abnormal in the rectum. On March 9, 1896, she had been etherized by Dr. Jones and a small tumor found on the an-

terior wall of the rectum just within reach of the finger. Scrapings from this were taken, and Dr. Robert Formad reported them to be carcinomatous, which report was confirmed by Dr. Kyle. Dr. Jones had examined her blood and found the hemoglobin to be sixty per cent., and that no plasmodium existed. The urine was negative, and both urine and stools were free from tubercle, as also were her lungs.

Examination March 20, 1896. I found a rather slender and feeble looking, though sprightly, woman. The rectal tumor alluded to was readily found on the anterior wall of the rectum just above the upper end of the vagina. It was quite tender to the touch, and no satisfactory examination could be made as to its size or its relation to the uterus or the ovaries. On examining the abdomen another small lump as large as a large cherry was felt just below the right border of the ribs in the nipple line. Pressure by the finger appeared to locate it in the abdominal wall, though it might have been more deeply situated. She was then etherized. The rectal tumor extended into the pelvis and was evidently a carcinoma; I could just reach it with my finger on deeply depressing the perineum. By bimanual examination it seemed to be continuous with the uterus, and I judged that the two were adherent. She absolutely demanded an operation, preferring to take the chances of dying to living the wretched life that she had before her. I decided therefore to operate after building her up as much as possible.

Operation April 10, 1896. The last mandate that she gave me as I left her room before the etherization was: "Mind that you take it all out." A celiotomy was done in the median line below the umbilicus. I found a mass two-thirds the size of a fist uniting the caput coli, the lower part of the ileum, a coil of the sigmoid flexure of the colon, and still lower down the rectum. On its surface ran the appendix four inches long, but about twice the normal diameter. The tumor did not encroach seriously on the calibre of the bowel. It lay immediately behind the uterus, but was not adherent to it. Both ovaries were markedly sclerotic and cystic. Removal of the mass was utterly out of the question. Accordingly I made an artificial anus in the lower ileum about twelve inches from the caput coli by Maydl's method. Before doing this, however, I examined the tumor felt at the border of the ribs and discovered that it was a distended gall-bladder,

and that there was a stone as large as the last joint of the thumb in the cystic duct. As it gave her no trouble and her life would evidently be short I did nothing with it. A coil of the ileum was now drawn out and the skin stitched together through a hole in the mesentery after the recommendation of Bidwell (*Lancet*, 1895, ii, 753). On the third day after the operation the intestine was opened, and this gave her great relief. Her strength however failed, and she died five days after the operation. Prior to the operation her temperature had risen as high as 102.4°, but after it and until just before her death it never rose above 100°.

CASE XXII.—*Cancer of rectum. Palliative colostomy only, on account of cardiac and costal complications. Schleich's fluid used instead of ether. Recovery.*

Hiram F., aged sixty-five, was kindly referred to the Jefferson Hospital by Dr. C. H. Shivers, of Haddonfield, N. J., March 1, 1896. Family and personal history excellent, except that when in the army in 1861 he had some vague heart trouble and had never been able to do any heavy work since, nor for the last fifteen years had he done any work. A year before he noticed a burning sensation about the rectum, which gave him great pain after defecation. He had lost about twenty pounds in weight in two years. Two and a half inches above the sphincter an indurated cancerous mass was found entirely surrounding the rectum. The case was one eminently fitted for extirpation, probably without any resection of the bones except possibly of the coccyx; but I decided on a colostomy by Maydl's method, for the following reasons: first, his heart was almost certainly fatty, as was determined by Dr. J. C. Wilson, who kindly saw him with me; second, his pulse was very weak and intermittent; third, the cartilages of the ribs were entirely ossified and the lower ribs united to each other, so that the chest-wall moved very imperfectly, and only as a whole up and down and to a slight extent. This greatly interfered with his respiration.

Operation March 4, 1896. For the reasons given above I also disliked to use ether or chloroform, and accordingly used Schleich's fluid, which only answered moderately well, dulling the pain but not annulling it. He felt pain not only during the incision of the abdominal wall, but also when the colon was handled. Instead of a glass bar I sewed the skin together by two stitches as suggested by Bidwell (*vide supra*). On the second day after

the operation the bowel was opened through half its circumference, and on the ninth day was completely divided. He had no rise of temperature after the operation. I have not heard from him since.

CASE XXIII.—*Cancer of rectum. Palliative colostomy by Maydl's method only, on account of the condition of the blood. Schleich's fluid used instead of ether. Relief; recovery from operation. Death thirty-seven days later from gangrene of foot from femoral venous thrombosis.*

Mrs. C. E., Stroudsburg, Pa., aged forty-three, was kindly brought to me by Dr. B. F. Keller of Pottstown, Pa., and Dr. C. M. Brownell of Stroudsburg, October 14, 1895. Her mother died of cancer and her grandmother of a tumor presumably malignant. In the middle of July, 1895, she noticed a sore feeling low down in the back, and that it hurt her to sit down. Her passages lessened in amount, but increased in frequency to two or three times a day. The size of the fecal masses also, was diminished. There was a slight mucous discharge from the anus. Rectal touch showed the rectum to be entirely surrounded by an extensive cancerous mass at two and a half to three inches above the anus. The finger could be engaged within the mass, but I was uncertain whether it reached its upper edge. No adhesions seemed to exist either to the uterus, vagina, or sacrum. Her general health seemed quite good, and I recommended extirpation. On November 7, 1895, she came down to my hospital, but with a marked change in her condition. Her lips and fingers were blue and livid, though there was no cardiac disease. Both legs were much swollen, and on examination I found a large thrombus in the right femoral vein and a moderate one in the left. In view, therefore, of the state of her blood, which became thrombosed with such ease, I instantly decided against any radical operation, and recommended a Maydl operation by a local anesthetic with Schleich's fluid.

Operation November 9, 1895. Two ounces of the medium solution of Schleich were injected under the skin and then into the muscular tissues of the abdominal wall. The operation was attended by no pain excepting at the upper end of the incision for perhaps a quarter of an inch, where I got beyond the area of the anesthesia. No pain was manifested on manipulating the colon (none of the fluid had reached the abdominal cavity or contents), and the operation was completed without difficulty, the bowel being stitched to the abdominal wall at the upper

and lower margins by one suture. Two days afterward the bowel was opened with the scissors without pain or bleeding. On the fifth day the protruding part of the colon was cut away, so that the end projected only half an inch above the level of the skin. On the evening of that day she was suddenly seized with great pain in the right leg, which became pale and cold, evidently from a marked extension of the thrombus. The temperature rose to 102°. The leg was elevated, wrapped in flannel and cotton, and surrounded with hot fomentations and hot-water bags. Internally hot stimulants and tonics were administered. In four days the temperature had fallen to the normal, and she went home ten days after the operation. Shortly after leaving the hospital gangrene of the left foot set in, and she died December 16, 1895, thirty-seven days after the Maydl operation.

Through the courtesy of Dr. Wm. J. Taylor I append two other cases in which the palliative Maydl operation gave great relief: the one for a short time before death; in the other the patient's life was prolonged for three years.

CASE XXIV.—*Inoperable carcinoma of the bowel. Inguinal colostomy (Maydl's operation); great relief. Death two months later.*

Mr. P., Philadelphia, was first seen by me in consultation with Dr. Willard on May 21, 1895. For a long time he had been suffering with, as he supposed, hemorrhoids, but which proved eventually to be carcinoma of the rectum. When Dr. Willard first saw him it had gone beyond the point of successful operation, and accordingly, on May 22d, he curetted the growth in the rectum in order to overcome the obstruction, which was pronounced and painful. Following this, on several occasions I learned that curetting was done, each time with relief, the degree of which gradually lessened with the progress of the disease. In the summer of 1896, while at the seashore he came under the professional care of Dr. Wm. J. Taylor, who on September 1 did a Maydl operation in the left inguinal region, after which he made a very speedy and satisfactory operative recovery. The bowel was opened after fourteen hours. After he returned to the city I saw him on several occasions. The relief from the operation was very great. His strength gradually failed, and he died on November 6, 1896.

CASE XXV.—*Inoperable cancer of rectum. Inguinal colostomy (Maydl's method); great relief for three years till he died.*

Rev. Mr. D., aged sixty-six, had been treated for hemorrhoids for several years. For fifteen months past the stools had been streaked with blood. A very extensive cancerous growth in the rectum was discovered by touch on his first visit, October 15, 1892.

Operation October 19, 1892, by Dr. Wm. J. Taylor. He took ether with very great difficulty and required artificial respiration during the operation, which was rapidly performed. Several hard cancerous nodules were found in the descending colon. The bowel was opened on the seventh day by the cautery. He made a prompt and satisfactory recovery. No radical operation, of course, was attempted. Two years after the colostomy his general health was good, and he reported "not much trouble from the wounds." He died September 29, 1895, almost three years after the operation. Some time before his death the cancer, which had extended to the bladder, resulted in a recto-vesical fistula.

#### • ETHER AND CHLOROFORM.

In a letter to the editor of the *Journal of the American Medical Association* of January 16, 1897, Dr. CHENERY of Boston says that a few weeks ago he saw an article stating that a number of deaths by chloroform had occurred in women in confinement. Not long before he saw it stated that no such case is on record. Now, which of these writers is correct? Has chloroform killed any woman under such circumstances? Chenery has no remembrance of seeing such an instance reported. If both ether and chloroform cause death in such cases we must select accordingly.

There are several points, however, we may properly consider as between the two:

1. An etherized patient, unless thoroughly under its influence, must be regarded as drunk or crazy, requiring considerable assistance to control and take care of her. It is not so with chloroform; the patient rather likes it and will call for it when not given to full anesthesia, and is able to think and talk and help the physician. The assistance of the nurse and one other woman is all the help required. He puts the chloroform on the handkerchief and keeps watch of the patient. The whole apparatus required is a lady's pocket-handkerchief, folded as it comes to hand, and a small phial, having a small neck, for the chloroform. Then placing the kerchief firmly over the mouth of the phial, the bottle is inverted so that only a few drops escape on to the kerchief. This bottle he keeps within reach and handles

himself, using his left hand and removing and inserting the cork with his teeth. Thus any woman can hold the chloroform to the patient, returning the kerchief to him for renewal of the chloroform just preceding the next pain, and keeping the kerchief to the nose in the intervals of the pains. Thus more or less of the anesthetic can be used as the exigency requires to keep the pains bearable. If more chloroform has to be given during the last few pains that does not seriously affect the child. And even in instrumental cases it is rare to need any extra skilled help, for by the time this is reached the woman giving the chloroform has become quite competent to give the anesthetic herself.

2. In heart cases chloroform has the advantage over ether.

3. Chloroform is not so dangerous to the child, since the mother takes less of it to make her confinement comfortable, and the child is rarely but slightly anesthetized as compared with ether, and speedily, in most cases, responds to changed circumstances and begins to breathe. Even in the heavier anesthesia of instrumental cases, the time being short, there is usually little difficulty in bringing about respiration in the child, if the chloroform is laid aside and the cord is not cut. Chenery remembers but one child over which he worked many minutes before respiration was established. This mother was a particularly nervous woman and required considerable anesthesia, and it was continued a much longer time than usual. When Chenery hears of a stillbirth, the child being alive before, he always inquires if the mother did not take ether at the confinement, and this is generally answered in the affirmative.

4. Ether, by its greater stimulation of the circulation, he believes is much more liable than chloroform to be followed by hemorrhage.

Chenery thinks these four points are greatly on the side of chloroform. If it is safer for the mother it becomes almost imperative that the accoucheur should give it instead of ether in confinement cases; for if judiciously administered it is a most glorious blessing to suffering humanity. Etherization is a home invention, and the writer entered Harvard only a few years after its first application, and has witnessed the continuous prejudice in its favor ever since. Yet from his own judgment and experience he is strongly in favor of chloroform in confinement cases, and from its easy application he believes we ought not to hesitate to use it when we should be slow to begin with ether.

# The Therapeutic Gazette

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## Leading Articles.

### THE VALUE AND DANGER OF CANTHARIDES.

It has been our custom from time to time to point out in the editorial and progress columns of the THERAPEUTIC GAZETTE certain of the untoward effects, produced by drugs which are commonly employed. Thus our readers will remember that in one editorial we called attention to some of the peculiar and disagreeable influences exercised in susceptible persons by quinine, and in another editorial those caused by iodide of potassium.

In the case of cantharides, a drug which is employed so frequently, it is of importance to recognize the fact that it not only possesses much power for good but also, in persons with easily irritated kidneys, the possibilities of producing deleterious effects not only when it is administered internally by a dermatologist for certain skin lesions and by the ordinary clinician for certain low grade inflammatory processes in the kidney, but also when it is applied externally for the purpose of producing counter-irritation and vesication. Whatever may be the opinion of the

best therapists as to the value of cantharides in minute doses for controlling or overcoming albuminuria due to subacute or chronic parenchymatous nephritis, there can be no doubt in the minds of the majority of physicians that the external use of this drug over the renal region in cases of congestion of the kidneys is often followed by the most beneficial results. Personally the writer of this editorial is convinced that the internal use of cantharides for the relief of albuminuria is resorted to too infrequently, since in quite a large number of cases he has seen beneficial results follow its employment; nor is he alone in this conclusion, for some of the English therapists have gone so far as to recommend minute doses of the tincture of cantharides for hematuria depending upon acute inflammation of the kidney after the first blush of its severity has passed by. Quite recently Du Cazal in one of the French journals has strongly supported this use of cantharides, having followed the recommendation made by Lancereaux in employing this method. Out of five cases, all of which followed attacks of infectious diseases, such as pneumonia and scarlet fever, four entirely recovered from the albuminuria. As pointed out, however, by Saundby in the *Birmingham Medical Review*, the results of Du Cazal are by no means as positively favorable as they would appear at first glance, for in many instances persons suffering from the albuminuria due to the infectious diseases recover without treatment, provided ordinary care is taken as to hygienic living, diet, and protection from cold. Saundby, on the other hand, states that he tried cantharides systematically in cases of nephritis some years ago, and came to the conclusion that it exercised no specific effect in controlling the excretion of albumen.

In regard to the possibility of deleterious influences following the employment of cantharides externally, a case which has recently been reported by Huchard is of considerable interest. It was that of a girl of eighteen to whose epigastrium was applied a small blister six square centimeters in size. As a result of this she developed an acute nephritis, with anasarca, intense dyspnea, convulsions, and almost complete uremic amaurosis, and associated with these symptoms she also had almost complete suppression of urine. He also mentioned two fatal cases caused by the application of cantharidal blisters, and what he said in denunciation of this form of counter-irritation was supported by two other

practitioners who were attending the meeting at which Huchard made his report.

On the other hand Dr. Ferrand, a practitioner who also joined in the debate, pointed out what Saundby and others know full well, namely, that blisters were useful and not dangerous, *unless they were left on too long*. It seems to us that the physician who desires to employ a cantharidal blister should remember two facts, namely, that blisters of large size are contraindicated in the presence of renal irritation or inflammation, and that in any event they should not be allowed to remain in contact with the skin longer than is necessary to produce the vesication. If these facts are borne in mind the evil effects which are feared by Huchard will not be met with, and patients will not be deprived of a useful though painful therapeutic measure owing to the fear of the physician that an accident may occur.

Convinced though we are that vesication is of value in the condition which we have named, we do not believe that it is to be employed recklessly or when milder counter-irritants such as the ordinary rubefacients would do as well. In Huchard's case the cantharides were applied to relieve gastralgia. Again, we think that the profession is gradually coming to the view that the application of cantharidal blisters to the walls of the thorax in the treatment of pneumonia and pleurisy, except in the very earliest stages, are of little real therapeutic value and frequently cause the patient a great amount of pain and annoyance. In children who are suffering from thoracic inflammations blisters certainly ought not to be employed, first, because of the pain; second, because of the nervous irritation which they produce; third, because if the child is ill for a considerable period of time difficulty may be met with in healing of the sore; and lastly, because renal irritation and irritative fever are apt to be caused by the external use of this drug in this class of patients.

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#### *CARBOLIC ACID AS A DISINFECTANT.*

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Nearly twelve years ago the Committee on Disinfectants of the American Public Health Association, composed of eminent bacteriologists and those interested in public health, made a report which while it received widespread notice did not receive the attention that its importance demanded. In this Report they included the results of a long and

careful series of experiments designed to determine the disinfectant or germicidal value of nearly all of the substances which are commonly used for the purpose of destroying germs, and it will be remembered that as a result of their labors we were confirmed in our earlier belief that bichloride of mercury, in proper solution and in proper surroundings, formed at once the most useful and powerful of all disinfectants. Also that for the disinfection of large masses of material and for cheapness and efficiency chlorinated lime when freshly prepared and containing due proportions of chlorine formed the next best disinfectant, and in many respects was superior to corrosive sublimate itself.

These same studies, moreover, proved beyond doubt, as have many subsequent ones made in other countries, that carbolic acid has a reputation as a germicide far above that which it deserves; that the ordinary solutions of carbolic acid are almost useless as germicides, though they were active as antiseptics; and that it requires very many hours exposure to very strong solutions of carbolic acid to kill pathogenic germs. Notwithstanding these studies, however, and notwithstanding the fact that surgeons have for a number of years ceased to employ carbolic acid for surgical purposes, to the extent that they did previously, the laity and some members of the profession seem to regard carbolic acid as the ideal disinfectant and scatter it about premises and rooms in a manner which, while it assails the nostrils of the individual, does little towards protecting him from infection. Further than this, carbolic acid can be obtained at any drug store in any quantity upon the request even of a child, and is generally sold without a question being asked as to the purpose for which it is intended. In other words, the laws regarding the sale of poisons do not include carbolic acid in the list of those which shall not be sold without a physician's order. Further, very few of the laity, and some of the profession, seem to be ignorant of the fact that carbolic acid while it is a poor disinfectant is on the other hand one of the most rapidly acting and lethal poisons known, capable of destroying life within a very few minutes after its ingestion, or of causing death later on by reason of the primary and secondary changes which it produces in the body. In 1892 we called attention to this fact in a leading article in the *THERAPEUTIC GAZETTE*, our attention being once more called to the matter at that time by the report of four cases of carbolic

acid poisoning in *The Chemist and Druggist* for that year.

Our attention has again been called to this matter by an interesting paper by Dr. J. Dixon Mann, Professor of Forensic Medicine in Owens College, Manchester, upon "Some Statistics of Carbolic Acid Poisoning," which is published in *The Medical Chronicle* for December, 1896. After mentioning a number of facts which we have already spoken of and pointing out how frequently carbolic acid is handled carelessly and placed in the way of children and ignorant members of the laity, Dr. Mann publishes a table in which he shows that from 1885 to 1895 the total number of deaths from this poison in Great Britain amongst males was 176 and amongst females 109; 52 of the males were in children under five years of age, and 26 of the females were under five years of age. He then goes on to point out that carbolic acid stands fourth among the poisons by which death was accidentally or negligently caused during the ten years ending 1894, and if chloroform and lead, the first of which has produced accidental death in a large number of cases and the second of which produces poisoning in the arts, are excluded carbolic acid takes the second place among the poisons which have caused accidental death from personal carelessness or ignorance.

Again, Dr. Mann points out that in the ten years which we have mentioned one-fourth of the women who committed suicide by poison did so with carbolic acid, and it ranks second as a suicidal poison for males; while if the two sexes are taken together carbolic acid stands first of all poisons used for the purpose of committing suicide. It is also interesting to note that the number of people who commit suicide by means of carbolic acid has rapidly progressed each year: thus in 1891 there were 63; in 1892, 73; in 1893, 117; and in 1894, 167. He also mentions two cases in which carbolic acid was used for the purpose of committing murder, the victims being children; and two cases of manslaughter also occurred.

Finally, he sums up the facts that during the ten years we have named 917 deaths were due to carbolic acid, an average of nearly 100 deaths; and that in 1894 the number of deaths from this cause reached the appalling total of 202.

Dr. Mann urges, therefore, what we have previously urged, that a restriction should be put upon the sale of this violent poison; and we doubt not that an examination of statis-

tics in this country would give conclusions nearly identical with those obtained by Dr. Mann from a study of the statistics in the United Kingdom of Great Britain.

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#### THE USE OF THYROID EXTRACT AND ITS SUBSTITUTES.

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The thyroid gland having become a recognized and valuable therapeutic agent in the treatment of several grave, although comparatively rare, affections, there have naturally been many studies made with the object of decreasing the bulk of the ordinary dose and of preparing the gland or its extract so that its administration would be as unobjectionable as possible. With this in view there have been prepared capsules containing concentrated extract of thyroid and tablets containing desiccated thyroid gland of such small bulk that one tablet containing two grains is equivalent to five grains of the fresh gland; and these tablets and capsules, or the desiccated gland itself, have been used for many months with the greatest possible satisfaction in the treatment of myxedema, cretinism, and obesity of certain types.

Not satisfied, however, with the use of the gland in this form certain German investigators have endeavored to isolate from it its so-called active principles and to market these derivative substances in small bulk, accompanied by the statement that they in every way represent the activity of the gland itself.

Clinical results, however, do not indicate that their theoretical views concerning the activity of these derivatives are correct, and not only is this true, but careful physiological study indicates positively that their influence upon general bodily metabolism is quite different from that exercised by the complete gland. It seems evident, therefore, that the entirely unobjectionable whole gland prepared in desiccated powder or capsule or in compressed tablet is the only means by which we ought to attempt to treat myxedema and similar conditions in which this animal substance has been found useful.

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#### THE SURGICAL TREATMENT OF PERFORATING TYPHOID ULCER.

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Two noteworthy contributions have appeared upon this topic, one—the most important and thorough—by Finney of Baltimore (*Annals of Surgery*, March, 1897), the other by Monod and Van Verts (*Revue de*



*Chirurgie*, March 10, 1897). Finney states that Richter in 1762 first suggested the advisability of opening and draining the peritoneal cavity in cases of general suppurative peritonitis. The first operation undertaken in a known case of typhoid fever was performed, he states, by Leticke of Strasburg. A wedge-shaped piece of the intestine was excised and the bowel sutured. The patient survived but a few hours. Finney has since collected forty-six cases reported in the literature upon this subject, and adds to this number six hitherto unpublished cases, including three of his own—in all fifty-two cases. From a study of statistics he finds that perforation of the intestine occurs in from one to two per cent. of all typhoid-fever cases, and as a cause of death in fatal cases it is found in between six and seven per cent. It occurs in the ileum, usually in the last two feet, in over eighty per cent. of all cases; in the large intestine in more than twelve per cent.; in the vermiform appendix in about five per cent. of all cases. It is usually single, but may be multiple. There seems to be no definite relation between perforation and the severity of the attack. It takes place in the mild as well as in the severe cases; the symptoms marking its onset may be sudden and severe or very mild, and are at times even wanting. It is more frequent in men than in women in about the ratio of three to one, and is rare in children. It commonly occurs between the ages of twenty and thirty and in the third week of the disease. The duration of life following this accident is short. Over eighty-three per cent. of all cases die during the first week.

Peritonitis resulting from perforation, if local, may result in spontaneous cure. It is possible for peritonitis to develop from causes other than perforation. Thus it may be due to ruptured mesenteric glands, abscess of the liver, perforating ulcers of the gall-bladder, softened infarcts of the spleen, etc. It is therefore evident that an estimation of the percentage of recovery is impossible.

Including all the cases that have been reported as operations for perforating typhoid ulcer, together with the six cases which he has collected himself, Finney states that the percentage of recovery is 32.68; [excluding however all doubtful cases 45 are left, of which 11 recovered, a percentage of 26.22.

Finney believes that his investigation does not throw much light upon the still mooted question of the respective merits of irrigating or wiping the peritoneal cavity. He holds that the irrigating fluid should be normal

salt solution, and that excision of the edges of the ulcer, or resection of a portion of the bowel containing the ulcer, is uncalled for. Should the intestinal wall be in such bad condition as to render suture of the perforation unsafe or impossible, the involved loop should be pulled out of the abdomen and left there for subsequent resection and anastomosis after the patient has recovered from his fever. He prefers the mattress suture of Halsted and advocates the invariable employment of drainage. It is best accomplished by means of wicks of iodoform gauze carried into different parts of the abdominal cavity if there is a general septic peritonitis, with the ends brought out through the abdominal wound. Drainage should be practised in the most dependent portion.

In over fifteen per cent. of the cases diagnosis was incorrect, but in all cases there was found an intraperitoneal condition absolutely requiring operation. The signs upon which Finney places most dependence are sudden acute pain in the abdomen with symptoms of collapse, accompanied by an abrupt fall in the temperature; vomiting is often present. Other symptoms, such as obliteration of liver dulness, gurgling sound on respiration, hiccough, etc., are useful when present. There is as yet no sign pathognomonic of perforation. The examination of the blood, however, promises to be of distinct diagnostic aid in this record. During the course of typhoid fever the number of white corpuscles gradually sinks, reaching its lowest point at about the end of the febrile period; with the development of the inflammatory complication there is a marked increase in the number of leucocytes, and one which takes place under no other known conditions.

Finney states that in the treatment of a case of perforating typhoid ulcer there are three things to be done: (1) Finding and closing perforation; (2) emptying and cleansing the peritoneal cavity; (3) the establishment and maintenance of effective drainage.

The method employed in his three cases seemed to him most satisfactory. The steps of the operation are as follows:

An oblique incision in the right iliac region, as if for appendicitis, long enough to give ample room through which to work, say six inches in length. Find the cæcum, which is always to be recognized by the longitudinal bands. This is the guide to the ileum (or appendix). Then with this as a starting point systematically draw out the coils of

ileum through the abdominal wound. Let an assistant wipe the intestine as it is withdrawn with a gauze sponge wrung out of hot salt solution, and another assistant keep it covered with warm salt sponges or towels. All the infected intestine should be drawn out of the peritoneal cavity, ileum, jejunum, duodenum—if necessary the whole of the small intestine. Then with large gauze abdominal pads and sponges wrung out of hot salt solution, carefully and systematically wipe out the peritoneal cavity until macroscopically clean, paying special attention to the pelvic portion. It is not usually necessary to irrigate with salt solution to do this. Next uncover the intestines and irrigate them thoroughly while outside the abdomen with hot salt solution; then begin to replace them in the inverse order from that in which they were withdrawn, being careful to wipe them dry, and free them thoroughly from flakes of lymph, fecal matter, etc. The worst coil should be the last replaced, and the sutured portion next the abdominal wound; this should be packed about with strips of bismuth gauze, and a strip introduced into the pelvis, if necessary. By packing about the worst or sutured coil of intestine and leaving it superficially placed, you insure good drainage and provide for the escape of extravasated fecal matter, if any such extravasation should take place. Then close the abdominal wound tightly, except a small opening for the gauze drain to come through. If there is much distention the bowels should be moved early and thoroughly by calomel in broken doses, followed by salts, and if necessary a high turpentine and soap-suds enema.

If stimulation is necessary, more reliance is to be placed on hypodermics of strychnine, enemata of several ounces of hot black coffee, and the transfusion into the cellular tissues under the breast of a quart or more of the normal salt solution, than on any other remedies.

Finally, (1) of all the so-called diagnostic signs of perforating typhoid ulcer, most reliance is to be placed upon the development of an attack of severe continued abdominal pain, coupled with nausea and vomiting, and at the same time a marked increase in the number of white blood-corpuscles; (2) the surgical is the only rational treatment of perforating typhoid ulcer; (3) there is no contra-indication to the operation, surgically speaking, save a moribund condition of the patient.

The statements of Monod and Van Verts

correspond closely to those of Finney as far as the historical part of the subject is concerned. In their statistical study, however, they reject a number of cases as not being certainly typhoid. They carefully consider the objections to intervention, finding none of them sufficient to contraindicate operation, not even diagnostic difficulties to which they accord a proper importance. They tabulate twenty-seven cases in which they consider the diagnosis absolutely certain. Of these five recovered, a total mortality of 81.5 per cent. The mortality of expectant treatment from perforation according to Richardson is ninety per cent., of general perforation following typhoid ulcer ninety-five per cent.

The prognosis is, of course, better when perforation comes late in the disease and occurs in the milder forms of the fever, and when the operation is performed promptly. Barring shock, the usual cause of death is peritonitis. In no case did autopsy show a giving way of the bowel at the seat of suture.

As to operative technique, these authors prefer median celiotomy, unless the peritonitis is circumscribed and can be localized by palpation. The extremity of the small intestine is first explored, beginning at the ileo-cæcal valve, continuing upward for about two feet. The ulcer having been found is sutured with catgut without previous freshening; the Lembert stitch is employed. Multiple perforations of a small section of the bowel would indicate section of this loop of intestine, bringing the divided ends into the abdominal incision. If the general peritonitis is present, the abdominal cavity should be washed out with a mild antiseptic fluid. Drainage is accomplished by means of gauze wicks.

The after-treatment is a stimulant one. The patient may be given iron and alcohol, injections of ether and caffeine, and especially subcutaneous or intravenous injections of serum in large doses.

The authors conclude with the statement that the results of surgical intervention in generalized peritonitis consecutive upon intestinal perforation are not encouraging, but are better than the results of more conservative treatment by a small percentage. Thus in the presence of distinct indications of perforation it is the duty of the surgeon to operate promptly, unless the patient is evidently in such a collapsed condition that any intervention will necessarily be immediately fatal.

## Reports on Therapeutic Progress

### *EUCAINE AS A LOCAL ANESTHETIC IN THE SURGERY OF THE THROAT, NOSE, AND EAR.*

HORNE and YEARSLEY, in the *British Medical Journal* of January 16, 1897, give the details of an interesting investigation of this new drug. The solutions used were in three strengths—two, five, and eight per cent. Of these, they found that the two-per-cent. is quite sufficient for anesthetizing the uvula, etc., for laryngoscopy or posterior rhinoscopy, and for aural examinations. In one case seven drops of a warm two-per-cent. solution dropped into the left ear and retained (with the head inclined to the right) for five minutes caused complete anesthesia of the membrana tympani lasting nearly twenty minutes. Another man, who was most intolerant of laryngoscopy, permitted a complete examination. In the latter case the eight-per-cent. solution was first used, but on the next occasion the two-per-cent. was found sufficient, as also for two other cases of posterior rhinoscopy. The five- or eight-per-cent. solutions have been used for operative procedures on nose, throat, and ear; and although in one case an aural furuncle was incised without pain under the five-per-cent., and in four other cases the same solution sufficiently anesthetized the membrana tympani to permit of myringotomy, it was generally found that for all operative measures on throat, nose or ear the eight-per-cent. solution was the more reliable. Furthermore, eucaine being in their experience (so far) devoid of unpleasant after-effects, it is of advantage to use the stronger solution. In the first case an attempt was made to cauterize an inferior turbinate body under a two-per-cent. solution, thus obtaining their only unsatisfactory result, the case requiring the five-per-cent. before proceeding. They recommend for the ear, warm instillation retained from five to eight minutes by inclining the head to the opposite side; for the nose, either simple swabbing, or the insertion of a pledget of cotton-wool soaked in eucaine for five to ten minutes; for the throat, simple swabbing with a pledget of cotton-wool. On no occasion was eucaine applied by means of a spray.

The authors have found that the anesthesia is slightly slower in onset than that of cocaine, and that five to ten minutes must elapse before the cases were ready for operation. When established the anesthesia is fully equal

to that of cocaine, and in this the writers' opinion is endorsed by the patients who had previously experienced the latter. The duration of the anesthesia is from ten to twenty minutes, fifteen minutes being the most usual time. In the extent of the anesthesia they have had no reason for dissatisfaction. They found that when the membrana tympani was anesthetic, the tympanum and ossicular chain were equally so. A pledget of wool passed into the anterior half of the nares rendered the inferior turbinate body anesthetic in its whole extent. Similarly, simple swabbing of the tonsils rendered them anesthetic throughout.

So far their investigations as to the effect of eucaine on the pulse are inconclusive. In many instances the observations must be excluded as unreliable, on account of the mental influences in the patient due to operation. In the few instances, however, in which the observations may be considered reliable, the pulse has remained the same in rate and character throughout. In no instance have they noted any slowing of the pulse. In only three cases have they seen any unpleasant effects upon the circulation following an operation or examination under eucaine, and in each of these there was sufficient reason to otherwise account for the trouble without attributing it to the drug.

Their observations upon the local effects of eucaine on the circulation are at present incomplete, several points having arisen requiring further consideration. They have not, however, found it to cause hyperemia of the turbinate bodies—in fact in several cases it has induced slight ischemia. In two cases it has been noted that a turbinate body which before the application was in contact with the septum was not touching it in any part when anesthesia was established. Of course, any ischemia observed was not to be compared to that caused by cocaine. This is a point upon which they hope to make further observations in the future. In no case has there been the hemorrhage after an operation which so often forms an unpleasant feature of cocaine anesthesia.

They desire to mention an apparent effect upon the salivary secretion. In the first case in which an eight-per-cent. solution was used to anesthetize the uvula for laryngoscopy, a considerable increase of saliva was noted. On another occasion, when a two-per-cent. solution was used, this feature was absent. A similar increased salivation was noted in another case under the two-per-cent. solution.

In another case of posterior rhinoscopy the saliva was not increased. Out of four tonsillotomies, in only one was increased salivation noted. This is an important point for decision by future observation, as its upholding will establish another point of difference from cocaine (which decreases the salivary secretion), and may detract from the usefulness of eucaïne in operations upon the oral cavity.

With the exception of three cases the authors have not noted a single instance of what might be construed as an unpleasant after-effect; the three exceptions have already been alluded to and explained. They allude to six cases as having experienced the effects of the use of cocaine. In the first of these, a female aged fifty-five, the use of cocaine for the removal of a nasal spur had caused such alarming syncope as to necessitate the employment of ether and amyl nitrite. This case has since been three times under eucaïne without the least discomfort. The five remaining cases all declared that, whilst cocaine had caused unpleasant sensations in the mouth and throat (variously described as "contracting," "freezing," and "numbing"), lasting for some hours, eucaïne on the contrary rendered them anesthetic to the operation without causing any after-effect greater than (in one case) an unpleasant taste lasting half an hour.

Several points remain for further experience to decide, but they consider that their results so far justify them in continuing the investigation. Eucaïne cannot, however, wholly replace cocaine, since the effect of the latter in reducing the size of the turbinate bodies gives it a value as an aid to diagnosis which eucaïne does not appear to possess.

#### THE TREATMENT OF PHTHISIS BY GUAIIACOLATE OF PIPERIDINE.

Another treatment for pulmonary tuberculosis has been devised by CHAPLIN and TUNNICLIFFE and reported in the *British Medical Journal* of January 16, 1897. They begin by saying that the success which has attended the treatment of phthisis by creosote and its derivatives, especially in the earlier stages, has led the authors to try a newly synthesized body, piperidine guaiacolate, which not only contains an antiseptic moiety, but also a constituent which possesses a nervine and vascular tonic action. In order to put their results with this substance as succinctly as possible, they divide

their paper into three parts—(1) Chemistry, (2) Pharmacology, (3) Therapeutics.

Piperidine guaiacolate has been prepared by Dr. Schidrowitz, and for its chemistry we are indebted to him. It is a compound formed by the action of piperidine on guaiacol in a suitable solvent, such as benzol or petroleic ether, and it must be regarded as a guaiacolate of piperidine, having the formula  $C_8H_{11}NC_7H_7O_2$ . Its exact chemical composition is still under investigation; it crystallizes in prismatic needles or plates; it is soluble to the extent of 3.5 per cent. in water, and is also easily soluble in most organic solvents; it melts at  $79.81^\circ C.$ ; it is decomposed into its constituents by mineral acids and alkalies. The chemical property which from a pharmaceutical standpoint is most worthy of note is the relative solubility of this salt. This becomes emphasized when the insolubility of the carbonate of guaiacol is borne in mind. The solubility is such that ten grains can be administered in an ounce draught of simple water, or if the specific gravity of the medium be raised by the addition of a little glycerin or mucilage a dose of from twenty to thirty grains can be given.

The pharmacology of the guaiacolate of piperidine resolves itself into the pharmacology of guaiacol and piperidine, for it is into these substances that the salt is decomposed, probably not in the acid medium of the stomach, but in the alkaline one of the duodenum. The reason for this assumption is that large doses (one drachm) can be given without the slightest eructation of guaiacol. The action of guaiacol is too well known to be discussed here; it acts in the intestine as an antiseptic; in the structures through which it is excreted—for example, the respiratory mucous membrane—it acts also as an antiseptic. When hydrochlorate of piperidine, suitably diluted, is injected into the circulation in doses of 0.05 gramme to the kilo of body weight the heart is slowed and the vessels contracted, a considerable rise of blood-pressure taking place. When injected under the skin in doses of from one to two centigrammes to the kilo, an increase in reflex excitability occurs, so that if the drug is pushed convulsions may develop. Thus in suitable doses piperidine must be regarded as a cardio-vascular tonic and spinal stimulant.

During the last three months an inquiry as to the value of piperidine guaiacolate in the treatment of pulmonary tuberculosis has been carried out at the City of London Hospital for

Diseases of the Chest. The patients to whom the drug was given were subjected to close observation, and the effects of the medicine were noted from time to time. In all, fourteen cases were placed under observation, of which eight were out-patients and six in-patients. The duration of the observations varied, but as a general statement it may be said that six weeks was the average. In order to efficiently test the value of the drug cases were chosen more or less haphazard, some being early cases in which improvement might be expected under appropriate treatment, others being more advanced, while yet others were in such a stage as to make it improbable that much good from any form of treatment would accrue. In all cases the dose to begin with was fixed at five grains three times a day, and this was gradually increased until twenty, and in one case twenty-five, grains were given for a dose. So far as could be gathered from questioning patients and personal observation, no unpleasant effects were noticed. All of them stated that the medicine had agreed with them. Pains were taken to ascertain if the drugs produced any gastric or intestinal irritation, but in no case could it be determined that the processes of digestion were in any way interfered with by the medicine. The authors think this worthy of special stress, because experience has so often taught them that when other derivatives of creosote, such as crude guaiacol, are given over a lengthened period, their use has to be discontinued from time to time, owing to the gastric and intestinal disturbances caused by them. But in these cases no such untoward effect appeared.

With regard to the varied symptoms of phthisis it is difficult to say with certainty that the guaiacolate of piperidine had any distinct effect upon them, for in all cases of phthisis it is so frequently found that improved hygienic conditions (good food, rest, and attention), such as residence in a hospital affords, play a large part in the restoration of the patient's health. This much may, however, be said, that in many instances the cough appreciably improved while the treatment was in progress. The temperature was in no case affected adversely by the drug; in most cases it receded to normal. The appetite for the most part was maintained, and very often patients expressed the belief that the medicine improved it; indeed, in some cases it seemed that it had a markedly good effect upon the appetite. Some patients

gained in weight while the treatment was going on, and in two instances it was thought that more flesh was put on than would have been the case had ordinary remedies been tried. The expectoration in most cases decreased while the drug was being taken. Among the out-patients especially there was a general improvement in strength and vitality. In the case of out-patients it must be remembered that improved hygienic conditions do not come into operation to the advantage of the patient as they do in in-patient practice.

Coming now to speak of the changes noted in the physical signs, it must be admitted that discussion of this subject is full of difficulty, for it so often happens that, although considerable improvement takes place in the general condition of the patient, yet no marked change occurs in the physical signs. Some of the cases (out-patients) whose condition was found to be improving were examined week by week to see if any change could be found in the physical signs. Consolidation and excavation were of course unaffected, but in not a few instances the lungs were noticed to become drier with less moist crepitant râles. This change was attributed to the fact that the area of simple inflammation around the tuberculous infiltration itself had passed from an active to a more quiescent condition. It must be admitted, however, that the same improvement in physical signs could not be seen in most of the cases under treatment as in-patients. Two out-patients considered that the medicine relieved their dyspnea, and to judge from the lung signs, which were improving rapidly under the treatment, it might very well be the case.

In stating the effects of any new drug upon a given disease the physician must always guard himself against "overenthusiasm;" so often it happens that a new medicine has been reputed to be successful in some affection, and upon fuller trial its effects are found to be trifling, or even *nil*. Of piperidine guaiacolate it may be generally stated:

1. That experience has shown that it is a perfectly safe drug in doses from five to thirty grains three times a day.
2. That it causes no unpleasant effects.
3. That it is exceedingly well borne by the stomach, and in this respect it is equal to any other derivative of creosote.
4. That patients while under its influence improved in appetite and general strength.

### A PRESCRIPTION FOR BLEPHARITIS.

The *Revue de Thérapeutique Médico-Chirurgicale* of January 15, 1897, states that LAM-DOLDT employs the following ointment:

- ℞ Neutral acetate of lead, 2 grains;  
Hydrochlorate of cocaine, 3 grains;  
White vaselin, 45 grains.

This ointment is to be applied to the edges of the inflamed lid.

### A PRESCRIPTION FOR HOARSENESS OF THE VOICE.

- ℞ Hydrochlorate of morphine, . . .  
Hydrochlorate of cocaine, of each 1-12 grain;  
Tincture of aconite, 2 drops;  
Powdered marshmallow, 3 grains;  
Sugar, a sufficient quantity.

Make into one pastille and take eight or ten such a day.

—*Revue Thérapeutique Médico-Chirurgicale*, Jan. 15, 1897.

### CREOSOTE IN THE TREATMENT OF PLEURO-PERITONEAL TUBERCULOSIS IN CHILDREN.

In the London *Lancet* of January 16, 1897, Professor THOMA writes an interesting article on this important subject. He first emphasizes the fact that peritoneal tuberculosis in children has for several years been treated by laparotomy, and the results are often very good. We have learned also to distinguish the different forms of this disease, so that its diagnosis and treatment are easier than formerly. Laparotomy is no doubt the best and quickest of all methods for dealing with those cases in which the peritoneum is covered with miliary tubercles; but it is always a serious operation and one also which not every medical practitioner is competent to perform. Moreover, the parents of the little patients are usually averse to surgical interference and anxious for the employment of some other means, so that it is not surprising that physicians should welcome a non-surgical treatment of this dangerous illness. In former years general tonics, painting with collodion, and the local application of iodines were principally relied on; but the results were often bad. Ichthyol has been employed of late years; it is certainly a good remedy, and in spite of its disagreeable smell the author has many times used it with satisfactory results in acute inflammations of the peritoneum. It has frequently happened, however, that these various methods were either ineffectual or else so tedious that children were obliged to stay too long in the hospitals.

Not long ago the idea occurred to the writer that in these cases creosote might be advantageously administered in enemata. The first writer who recommended this treatment was Dr. Revillet of Cannes, but he employed it only for the treatment of phthisis; and after him many physicians have had favorable results. Sometimes this substance disagrees with the patients, causing diarrhea and pains in the abdomen, so that it has either to be discontinued or combined with acetum opii ("black drop"), but this adjunct does not always succeed, and is often contra-indicated. Another difficulty is the necessity for the patient's retaining the enemata as long as possible, in order that the creosote may be completely absorbed. With very young children this is hardly possible, but with his two little patients it was very easy. The enema was given each evening when the child was quiet and before it was put to bed. At first the child could not retain the enema more than three or four hours, but after some days it slept well, and on many occasions only a little oil was found in the morning along with the first motion of the bowels. Dr. Revillet directed the enemata to be prepared with water, a small quantity of almond oil, and the yolk of one egg. Recently, however, it has been proposed by a chemist of Grenoble to administer creosote in milk; forty-three drops of creosote are mixed with a quarter of a glass of milk, and water is afterwards added. This method is evidently more simple and has the advantage that the milk is taken by the mouth, for everybody knows the difficulty of feeding an unwilling child. Nevertheless the writer prefers the association of cod-liver oil with creosote. In an interesting memoir presented to the Faculty of Medicine in Geneva, Dr. Loppino, confirming the experimental researches of Professor Schiff, has proved that fat is very well absorbed by the rectum, and that oleaginous injections are highly important agents in combating emaciation and cachectic states. Dr. Loppino has never seen any bad effects resulting from the practice; the best results were obtained in the case of neurasthenic and tuberculous patients, and it is a useful mode of carrying out the treatment by over-feeding introduced by Dr. Weir Mitchell. This circumstance induced the author to try enemata composed of a mixture of cod-liver oil with creosote. At the outset each enema contained 150 grammes (about four ounces) of emulsified oil and 0.5 gramme (eight grains) of creosote, but after from eight to

ten days he gave one gramme of creosote. In the first case the child took in the course of some days 1.5 grammes of creosote; diarrhea ensued, and the enemata had to be discontinued. After the treatment has been continued for some weeks it is a good plan to suspend it for five or six days and begin again. The author has not noticed that the taste of creosote was perceived by the children; their appetite was somewhat impaired at first, but was not lost, and subsequently improved. By this method it is possible to relieve the disorders of the bowels so frequent in this illness. He thinks that the antiseptic action of creosote is valuable against intestinal fermentations; it is not unusual to find constipation alternate with diarrhea in the first stage of tuberculous peritonitis, an important cause of that condition being weak digestion and the slowness or rapidity of the movements of the intestines. The antiseptic action of the mixture of cod-liver oil and creosote is very efficacious against these troubles, and after some days an improvement will be seen. The absorption of the creosote was unquestionable, for on many occasions the urine was dark-colored. It is possible that creosote may have a curative effect on tuberculous deposits.

The first of the author's cases was a boy, eleven years of age, whose father and mother were alive and in good health. One sister of the mother died from tuberculosis some years previously; the child had often been to see her and was kissed by her. In August, 1894, he fell ill with pleurisy on the right side; the attack lasted fifteen days, but he seemed to recover perfectly. In November he suffered from cough; in February, 1895, he lost his appetite, became very weak, suffered from abdominal pains, and went into the hospital on March 1. On admission he was thin and feverish, his evening temperature being 38.5° C. His tongue was thickly coated and he had no appetite, but there was no vomiting. The abdomen was distended, but not very painful; there was retraction of the hypogastrium, but no indication of ascites. Some obstruction was felt on deep palpation, and there was diarrhea. The urine was normal. The patient had a little cough, and on the left side there was rough respiration with egophony; the breath sound was rough and the expiration prolonged at both apices. Milk diet was given, a blister was applied over the left lung, and ichthyol on the abdomen. On March 7 the signs of pleurisy were increased.

An enema containing nine grains of creosote was administered. On the 14th the enema was retained for eight hours and caused no pain. On the 16th an enema containing fifteen grains of creosote was given. The diarrhea had now ceased, and the condition of the left lung was also better. On April 10 slight ascites was recognized, but the abdomen was less distended and more yielding. On the 20th the amount of creosote was raised to eighteen grains, and the patient's state, both general and local, improved. On the 27th slight diarrhea necessitated the temporary discontinuance of the creosote, as the last dose had been too large; but after a few days the treatment was resumed, and on June 25 the patient's general state was very good, the lungs and abdomen being normal. He then went into the country. The author saw him on August 17, and found that the improvement was fully maintained. On October 5 he set out for Cannes in perfectly good health.

The writer's second case was that of a girl, seven years of age, whose father and mother were in good health. In 1890 she suffered from influenza and bronchitis, and frequently from cough since that date. In March, 1895, her strength and appetite failed. On March 26 fever and cough set in, and on the 29th she was admitted into the hospital. She was at that time anemic and thin, and had symptoms of general bronchitis; on the right side there was a harsh breath sound, with bronchophony and signs of slight, dry pleurisy. There were also diarrhea and loss of appetite, but there was no vomiting. The abdomen was distended, with some retraction in the lower part; there were no ascites; the intestines seemed to be matted together. The treatment consisted in the application of ichthyol to the abdomen and the administering of an enema with nine grains of creosote, but after some days the dose was raised to fifteen grains. The symptoms of bronchitis gradually subsided, and on May 30 the abdomen was less distended, but it was necessary to make an application of collodion to it. On July 1 the abdomen was yielding and free from pain, the diarrhea had ceased, the appetite was good, and the general health was excellent. The child weighed twenty kilogrammes (44 pounds), being a gain of three kilogrammes (6½ pounds). She then went home, but returned to the hospital in the month of August, having partaken too freely of fruit, which had caused diarrhea. After some days of ordinary treatment the diar-

rhea ceased, and at the end of September the patient's health was very good.

Of course it is inexpedient to generalize from two cases, especially as these children were not very ill and were treated promptly; but, keeping in mind the comparatively short duration of the treatment and the necessity for preserving the appetite and the digestive functions as unimpaired as possible, it seems that enemata of cod-liver oil and creosote are well tolerated and give good results.

#### FORMALDEHYDE.

In the *Medical Chronicle* for December, 1896, LEECH gives an interesting summary of the therapeutic possibilities of formaldehyde. Formic aldehyde ( $\text{CH}_3\text{O}$ ) is produced when by means of a specially constructed lamp the vapor of methyl alcohol ( $\text{CH}_3\text{OH}$ ) is passed over an incandescent platinum hood or mantle. The following formula represents the reaction:  $\text{CH}_3\text{O} + \text{O} = \text{CH}_3\text{O} + \text{H}_2\text{O}$ . For some time past a solution of formaldehyde in water of a strength of forty per cent. has been on the market under the name of formol or formaline.

Mosso and Paoletti find that formaline has a bacterial action almost equal to that of corrosive sublimate, while it is much less toxic. One part in 20,000 is sufficient to slow the ammoniacal fermentation of urine, and 1 in 4000 inhibits it altogether. Formaline hinders the coagulation of albumen by heat, but hastens the clotting of blood. It has little influence on the frog's heart, unless in solutions over one per cent. in strength. Very small doses, however, are sufficient to raise the blood-pressure and markedly affect respiration. Doses exceeding one cubic centimeter per kilo of body weight quickly cause death; doses of 0.1 cubic centimeter are poisonous if introduced into the circulation; and even smaller doses produce marked symptoms of irritation. A powerful action on the nervous system is shown, resulting in convulsions, analgesia, and lowering of temperature.

Formaldehyde has been found very useful in pathological work for hardening microscopic preparations and museum specimens. Orth has recently pointed out the value of formaline in this connection.

Several observers have experimented with formaldehyde in the disinfection of rooms. Some of the more recent papers are those of Roux, Trillat, Pfuhl, and Hebert. Opinion is divided as to the practical value of formaldehyde for this purpose.

Horton considers formaline particularly suitable for the disinfection of books, as the vapor is not detrimental in any way to them, while it is very rapid in its disinfectant action. The effect produced during the first fifteen minutes is practically as great as that after twenty-four hours' exposure. He found that in a closed space books can be thoroughly disinfected by using one cubic centimeter of commercial formaline to 300 cubic centimeters of air.

Turning to the therapeutic uses of the drug, Schleich found that when a watery solution of gelatin is allowed to dry in formaline vapor the chemical characteristics of the gelatin are altered. It is no longer affected by hot or cold water, nor by acids or alkalies. Animal tissues, however, have the power of breaking up the combination and setting the formaline free. It was also found that when the formaline gelatin, ground to a fine powder and mixed with cultures of various forms of pathogenic bacteria, was introduced into animals the bacteria did not develop, and the wounds healed without trouble.

Schleich states that with this formaline gelatin powder every acute suppuration can be stopped in twenty-four hours, and wounds made to heal aseptically. He has used it in 120 cases of acute suppurative processes, in ninety-three aseptic wounds, four compound fractures, and two deep scalp wounds. The wounds were only cleansed mechanically, and then thoroughly rubbed with the powder. In fresh wounds the powder formed with the blood a quite dry and firm scab in a few hours.

In cases of necrotic masses, in old ulcers, etc., the powder had very little effect, but it was found that it could be digested with a pepsin hydrochloric acid solution (5 parts of pepsin and 0.3 of hydrochloric acid in 100 parts of water). The formaline gelatin powder is dusted on the wound, and then covered with a dressing wet with the pepsin solution, and the digestive process keeps up a continuous supply of formaldehyde vapor for the wound. The powder is made by drying 500 grammes of purified and dissolved gelatin in the vapor of twenty-five drops of formaline.

Foote has recently published a paper giving an account of forty-five cases of suppurative wounds in which he has used Schleich's formaline gelatin. He concludes that formaline has some antiseptic action, but not so great as to render a suppurating wound sterile. It seemed to control the infection for



two days, and if the character of the wound was such that this respite was enough to secure its closure, the result was perfect. If not, then whatever gain was made in the first two or three days was maintained, and the wound went on granulating from that point. This, however, is a distinct advance on the usual treatment. Another point in favor of the formaline gelatin is that it does away with the necessity of drainage. On the whole, Foote thinks the method marks a distinct advance in the treatment of suppuration, giving the most perfect results in those cases where the cellulitis is moderate and the pus abundant.

Alexander considers formaldehyde the "ideal germicide, deodorant, and antizymotic." He has used it in his practice for a year. He quotes De' Buck and Vanderlinden as having used it successfully in one-half per cent. strength for washing hands and instruments, cleansing site of operation, and for rendering infected wounds, cavities and sinuses antiseptic. Formaline does not spoil the edge of the knives, apparently not attacking metal at all. Dr. Alexander uses the pure forty-per cent. formaline very successfully in chancroid and chancre, applying it locally, a single application being sufficient to cause the ulcer to heal rapidly. He found formaline solution a remedy for pruritus vulvæ when other drugs had failed. Four cases of diphtheria were treated with formaline and whiskey. The whiskey was given internally, and the atmosphere of the rooms impregnated with the vapor of formaline, direct application to the throat being also made with the formaline solution. He finds a spray of one-half per cent. valuable in hay fever, and a spray of one-per-cent. solution in whooping-cough. In ten cases of gonorrhea he used a one-half-per-cent. solution, injected three times a day, with satisfactory results; he found the treatment free from the pain or irritation usually caused by the use of sublimate and other solutions.

Howland has treated six cases of gonorrhea with formaline. In every case the gonococcus was found. He started with a five-per-cent. solution, but found this too strong. In the rest of the injections he used a one-half-per-cent. solution. For the first two or three days irrigations of one quart of hot formaline solution were given twice daily; afterwards once daily until the discharge ceased to contain the gonococci. No internal treatment was given except cathartic pills. All highly-seasoned food, alcohol, tea and coffee were

prohibited. The patients were advised to drink two to four quarts of pure water in the twenty-four hours. Dr. Howland noticed peculiar action of the irrigating fluid on the gonococci. They "shriveled up" and lost their form.

De Smet claims good results from the use of formaldehyde in gonorrhea in women. Sixty cases, some very obstinate, were cured. The vulva was washed with a 1:1000 solution, and the vagina douched through a speculum with a strong solution, varying from 2:1000 to 5:1000. If the uterine cavity and cervical canal were involved, some of the same solution was injected. When there is laceration of the cervix, tampons soaked in 1:1000 solution of formaldehyde are left for two or three hours in the vagina. When fungous endometritis is present the curette must be applied first. The applications give rise to no pain, and may be used daily, or every second day.

Lamarque has used formol in one-per-cent. solution for washing out the bladder and urethra, and in five-per-cent. solution for instillation. In acute gonorrhea and in gonorrheal cystitis he has not had encouraging results. In chronic gonorrhea they have been better. He considers this treatment most successful in cases of tubercular cystitis. The only disadvantage is the pain caused by the drug, which, however, though intense, quickly ceases.

In ophthalmic practice formaldehyde has been used for some time. Valude, in May, 1893, made a communication on the subject to the Société Française d'Ophtalmologie.

Burnett has obtained excellent results in infecting ulcers of the cornea and in purulent conjunctivitis. Corneal ulcers may be touched with a solution of 1:200 or 1:500 every day. For general use as an antiseptic collyrium, a strength of 1:1000 or 1:2000 may be used, though the stronger of these sometimes causes a slight burning sensation.

Davidson finds one part of formaline in 2000 or 3000 of water the most serviceable strength of solution. When he tried it first in hypopyon ulcers, it was dropped into the affected eye three or four times daily, and it seemed of very little use, but on applying it freely every hour it acted very effectually. In abrasions of the cornea and in corneal ulcers, Dr. Davidson believes formaline will be of great value if applied freely and often.

Dr. Stephenson has found a solution of 1:2000 of service in muco-purulent and follicular inflammations of the conjunctiva, when applied thrice a day to the everted lids. In

trachoma it seems to have the power of reducing the amount of secretion.

Solis-Cohen has during the past year seen such good results in the treatment of tuberculosis of the larynx, alike in infiltrative, ulcerative, and vegetative cases, by means of formic aldehyde solutions that he is tempted to believe that in this agent we have a means of treatment superior to any other that he has ever used. He uses the commercial formaline, diluting it to the strength required, which ranges from one-half to four per cent. of formic aldehyde—that is, from one to ten per cent. of the commercial formaline, which contains 0.40 per cent. of formaldehyde. Before making the applications the parts should be thoroughly cocainized, otherwise the application to the mucous membranes causes an intense burning, stinging, and even strangling sensation.

The mode of application is similar to that employed with lactic acid. The parts are thoroughly rubbed with the formaldehyde solution after previous cleansing and cocainization. Beginning with the weakest solution, the strength is increased up to ten per cent. of the commercial formaline, which corresponds to four per cent. of pure formaldehyde. This is the strongest solution he has found it necessary to employ.

Pottevin has tried formic aldehyde for ringworm. The hair having been cut short, and the scalp cleansed, a compress of cotton-wool soaked in a two-per-cent. solution of formic aldehyde was applied to the affected parts, or, better still, to the whole scalp. The whole was then covered with an india-rubber cap, or piece of oiled silk, and left on for twenty-four hours, when a fresh application was made.

The results were not encouraging, as in most cases the remedy did not effect a cure. However, according to an abstract in the *Cincinnati Lancet-Clinic* of November 7, 1896, forty cases of ringworm of the scalp, in hospital out-patients, were treated by formaline applications. The preparation used was formaline in full forty-per-cent. strength, which was vigorously rubbed in with a brush or mop for ten minutes, the hair having been shaved round the patches. The application was repeated every other day on four occasions, and then entirely discontinued. Of the forty cases, only five required repainting from non-eradication of the disease. Microscopical examination was always made before commencing treatment, and the presence of the trichophyton verified.

#### IRITIS AND ITS TREATMENT.

In the *Medical News* of January 9, 1897, Dr. L. F. LOVE points out that the treatment of iritis has progressed but little since the early days of ophthalmology, and for the simple reason that if adopted early the old-fashioned treatment is eminently satisfactory. As in the days of our fathers, it consists essentially in the free exhibition of mercury, of local sedatives and derivatives, and in the free use of atropine. Mercury is best administered by inunction, the system thus rapidly coming under its influence. It should be remembered that the general condition of those attacked by iritis is usually poor, that not rarely the stomach is irritable, and the digestion impaired. Internal medication should therefore be avoided as much as possible, except so far as is useful to build up the system and correct disorders of digestion. The use of mercury should be pushed to the point of tolerance. "Gently touch the gums" is the good old rule, which is probably not very far wrong. Iodide of potassium is of little use in the earlier stages of the disease, but must be used after the inflammatory stages have passed, and when the mercury has been pushed almost to the point of salivation. If, unfortunately, your patient should object to inunctions, then some other form of mercury than the ointment must be used—the protiodide or bichloride internally, or better still the subconjunctival injections as used by Abadie.

Local treatment to reduce the inflammation is very efficacious. Love usually employs the Heurtelpe or Swedish leech applied to the temples. Hot-water fomentations applied to the eyeball are useful in allaying pain, and possibly in lessening the congestion, and should be freely used at frequent intervals and as hot as can be borne. A boric acid solution should also be employed.

But the chief treatment is the use of atropine, which should be administered both early and late, and in sufficient strength to dilate the pupil thoroughly, and at such frequent intervals as to maintain the dilatation. In the early stages the use of a solution of four grains to the ounce of the sulphate of atropine applied every four hours, or even more frequently, is necessary to bring about this result. The writer has found good effects from combining cocaine with the atropine in the earlier stages; it lessens the pain and aids in the more rapid dilatation of the pupil. After full dilatation has been obtained the cocaine may be dropped, but the use of

atropine until all inflammation of the iris has disappeared is absolutely imperative. In uncomplicated cases which are seen at an early stage the progress is very favorable. With neglected cases complications are very liable to occur. The most simple is posterior synechia, which is altogether too frequently seen in eye-clinics, but it is unnecessary at this time to more than refer to the fact that most serious complications are more liable to follow neglect or maltreatment.

The writer has been greatly struck by the tolerance of mercury evident in many cases of iritis. He has seen numbers of cases which, as far as he could determine, were non-syphilitic, which bore readily the absorption of two to three drachms daily of mercurial ointment, for weeks and even months, with no symptoms of pyralization; the mercury was continued until the eye whitened and the evidence of deep injection lessened. In these cases mercury acted as a powerful tonic, the general health improving even more rapidly when the inflammation subsided; and it is in these cases that the most successful results are seen. The author has already referred to the necessity of attending to the general health in many patients. As the majority of cases of iritis occur in patients whose systems have been run down by the presence of syphilitic or other poisons, the Turkish bath is especially useful, and tonic treatment should never be neglected.

In conclusion, he impresses upon the profession the facts that iritis is readily recognizable and is a most tractable disease if taken in time. The treatment is simple and effective, and there is no reason why nearly every case of iritis coming under competent care should not make a good recovery.

#### *STENOCARDIA (ANGINA PECTORIS).*

H. N. HEINEMAN of New York writes on this topic in the *Medical News* of January 9, 1897. After discussing the etiological and other factors in these cases he recalls the fact that a great many attacks are excited by the influence of cold. The avoidance of cold water, and even of tepid water, to any large surface of the body on account of the succeeding chill must be advised. Such patients must wash their bodies one part at a time, and have that part well dried and covered before proceeding to the next. Even the keeping of the hands well gloved, maintaining warm feet, protecting the mouth and nose

from the sweeping cold wind or air, are precautions that will save the patient from many an attack. The regulation of the patient's life and habits come under this category. Avoidance of mental worry and emotion, of overexertion, and even needless exertion at times, is imperative. The patient must walk with deliberation, and the combination of walking and talking may be too great a strain for the heart until it is improved by general treatment. Tobacco should be absolutely interdicted, and all spirituous liquors as well. In persons who have always taken wine, a small quantity of a light Moselle or claret, preferably Moselle, may be taken diluted at dinner or, exceptionally, if the patient feels weak and in need of it. Overindulgence in food must be guarded against. If the patient has the prodromal symptoms of an attack, the seeking of shelter, of a warm room, of warmth to the surface, or resting lying down, may ward off an attack.

The general treatment must have two objects: first, the improvement of the heart and blood-vessels; and second, the relief of engorgement in the internal viscera and capillaries.

For the improvement of the heart and blood-vessels, the use of potassium or sodium iodide in from three- to five-grain doses kept up for months is an old remedial agent of a certain, though not always satisfactory, value. The treatment by saline baths and by the Schott method of exercises has a most potent effect in improving the condition of the cardiac muscle and vessels, and appears to have a direct effect in making the attacks less numerous and severe, and even in causing them to cease during a period of months or years.

The exercises with resistance, or Schott movements, should be carried out in the way indicated by the writer in a previous paper read before the general meeting of the New York Academy of Medicine. The movements are made in such a manner that the attendant can easily resist or hinder the movement, and the patient in seeking to complete the movement must overcome the resistance of the attendant. The movements must be made with especial care and caution in these cases, and the resistance at the outset must be at a minimum.

The artificial saline baths should contain from one to three per cent. of salt, and from one-fourth to one per cent. of chloride of calcium, and should gradually be strengthened by the addition of carbonic acid. By a

process now in the last stages of completion it will be possible to prepare the saline effervescent and saline effervescent flowing baths by means of a simple apparatus, so that the carbonic acid will be intimately mixed with the water.

For the relief of visceral and capillary engorgement we may resort to medicinal agents. Although the baths and exercises do this to a marked extent, the administration of a half-grain of calomel (well triturated) thrice weekly at bedtime, succeeded the next morning by a dose of Carlsbad sprudel salts, adds materially to the effect.

After the visceral engorgement has been much relieved, we can now use our nitrites, and in some cases nitroglycerin; for until visceral congestion is relieved it is only playing "hide and-seek" to try to relieve the capillaries, which are immediately clogged again by the nearest congested viscus. Having accomplished this, we now find the cardiac tonics—sparteine, strophanthus, strychnine, valerian, and in suitable cases digitalis—of the greatest utility.

The general tendency to anemia and defective oxygenation must never be lost sight of, and general tonics, including the use of oxygen gas, as recommended by A. H. Smith, will be of excellent service.

The treatment of the attack includes the use of nitrite of amyl in from three- to five-drop doses poured upon a handkerchief, or taken from a glass pearl in similar manner and inhaled.

The use of nitroglycerin in  $\frac{1}{16}$ -grain doses is of less rapid efficacy. It may be repeated once in three or four hours, or even longer intervals. In a severe attack it may be given at half-hour intervals, but should be given guardedly. In some patients the effect of nitroglycerin is immediate, in others very slow. Hypodermic injections of morphine, with or without atropine, is often of great service.

The use of ether or chloroform, with or without valerian internally, relieves moderate spasm, and is somewhat stimulating. Local counter-irritation, by issue, sinapism, or blister over the præcordium, or the actual cautery over the præcordium, or applied over the hepatic region in some cases, and the application of electricity, may be resorted to. Sometimes the local application of the hot-water bag is of service. Exercises given with extreme caution have in the writer's own hands sometimes given some relief to the acute symptoms.

To recapitulate, he wishes to emphasize that the treatment should not be haphazard, but systematic, if we would accomplish anything; and considering the suffering entailed by this disease and the danger involved, such attention upon our part is essential and called for.

First, we must remove exciting causes of every kind, and next relieve the visceral engorgement that has long existed because the heart was too weak and the vessels not elastic enough to keep up proper venous circulation; and having gotten rid of the *vis a tergo*, we relieve the capillaries by appropriate remedies and coincidentally stimulate the heart, which can now act better because its capillary embargo has been raised. The success of the treatment depends upon the following out of the sequence just suggested. The comfort to be guaranteed to the patient, and the prolongation of life, are sufficient rewards for patient toil and scientific interest.

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#### CAJUPUT OIL FOR CROUPOUS PNEUMONIA.

In the *Indian Medical Gazette* for December, 1896, SINHA reports that he has treated eighteen cases of pneumonia with oil of cajuput, with great success. He gives it in the dose of five drops in emulsion every four or five hours.

We note, however, that in several instances he continued its use with *nux vomica* and camphor and other drugs, which may have had much to do with the good effects produced.

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#### A NOTE ON DECOMPOSITION OF CHLOROFORM AND SICKNESS.

In the London *Lancet* of January 23, 1897, NEWMAN and RAMSAY report the following interesting facts concerning the decomposition of chloroform and the development of illness subsequent to its use.

Early in the history of chloroform it was noticed that the agent had a tendency to undergo spontaneous decomposition on exposure to air and light, and although within recent years great care has been taken by manufacturers of the drug to produce as pure an article as possible, nevertheless the fact remains that chloroform is not stable and rapidly deteriorates as an anesthetic. When freshly distilled chloroform is administered the vapor is easily inhaled, having a sweetish and not unpleasant taste and odor. It produces little or

no irritation in the air passages, little excitement of the patient is observed, and if the agent is carefully given sickness, fainting, and irregularity of the pulse and respiration seldom occur during its administration. But if chloroform is kept in a bottle containing air, exposed even to feeble light, changes are produced in the drug which render it less suitable as an anesthetic. The change is due to the formation of carbonyl chloride and hydrogen chloride, according to the equation  $\text{CHCl}_3 + \text{O} = \text{HCl} + \text{COCl}_2$ . These substances render the vapor slightly pungent in odor, and on inhalation it produces irritation in the air passages. The period of excitement of the patient is more marked, and the liability to sickness during and after anesthesia is greater.

During the last six months the effects of freshly distilled chloroform and of chloroform supplied in the ordinary way have been contrasted, greatly to the advantage of the former. It has been found, however, that distillation is not necessary, as by shaking the chloroform with slaked lime, and filtering, the irritating products of decomposition are eliminated, as indeed theory would predict; for the hydrochloric acid is of course at once acted on by the lime, giving calcium chloride and water, and the carbonyl chloride, to the presence of which the sickness is probably to be ascribed, is resolved into carbonate and chloride of calcium, thus  $\text{COCl}_2 + \text{Ca(OH)}_2 = \text{CaCO}_3 + \text{CaCl}_2$ . In illustration the three following cases may be mentioned:

CASE I.—A man was operated upon on three occasions. For the first two the chloroform had been given in the wards for not more than ten days, and was kept in a well-stoppered bottle away from direct light; but the bottle contained some air. Each operation lasted fully an hour, and on both occasions the pulse became very irregular and feeble, so as to necessitate artificial respiration. While recovering from the effect of the chloroform he was very sick, and the sickness continued for two days after the first operation, and for three days after the second. The third operation lasted for one and a half hours. Chloroform which had been kept with slaked lime in it and filtered before use was employed. The patient, although much feebler through disease, remained well during the operation, and there was no sickness for twelve hours, when he suddenly became sick, but this passed off in a short time.

CASE II.—A woman had been under chloroform four times, and she was invariably very

sick while coming out and afterwards, the sickness lasting for twenty-four hours or more. When chloroform treated with lime was used, on coming out of the anesthetic sickness occurred for a few minutes only.

CASE III.—A man was under chloroform four times. On the first and third chloroform as supplied by the druggist was used, and it was not more than twelve days old. After both operations there was severe sickness, lasting for thirty-six hours. On the second and fourth administrations freshly distilled chloroform was employed, with no sickness.

As a matter of experience it was found that freshly prepared chloroform is more reliable as an anesthetic, and is less likely to produce sickness during or after administration, and the risks of anesthesia are probably increased by the decomposition of chloroform when kept for any considerable time exposed to air and light. Even with fresh chloroform sickness may occur if the patient is allowed to come out during the operation, but the quantity of acrid mucus is very small in amount as compared with what is seen when older chloroform is given. Perfectly pure chloroform is said to be a much less stable body than chloroform containing alcohol. As an instance of the instability of pure chloroform it may be mentioned that a sample left in a half-full stoppered bottle from July till October, 1896, smelt as pungent as hydrochloric acid, gave with baryta water a copious precipitate of carbonate, and was absolutely irrespirable.

#### THE ACTION OF THE SUPRARENAL GLANDS.

An excellent summary of this subject is made by STOCKMAN in the *Edinburgh Medical Journal* for February, 1897. As he states experimental researches on animals have shown that the subcutaneous and intravenous administration of suprarenal extract produces remarkable physiological effects. The active substance is contained in the medullary portion of the gland, and the activity of the extract has been shown by Fränkel (*Wiener Medicinische Blätter*, 1896) to run parallel with the distinctness of certain color reactions (e.g., a green with ferric chloride), which are due to a substance which has not yet been isolated in a pure state. Moore has shown (*Proc. Physiol. Soc.*, London, 1895) that the active constituent is neither a proteid nor a carbohydrate, that it is not affected by acids nor by boiling for some minutes, but is de-

stroyed by alkalies, reducing agents, and prolonged boiling. It is not altered by artificial peptic digestion, and therefore, according to Oliver and Schäfer, preparations of the gland may be rationally given by the stomach, an opinion which has now been confirmed by therapeutical results. The active principle is readily extracted by water, glycerin, and weak alcohol, and is apparently a compound of pyrocatechin, as this body has been obtained from it by chemical decomposition (Mühlmann, *Deutsche Med. Wochenschr.*, Leipzig, 1896, No. 26). Oliver and Schäfer in an elaborate research (*Journal of Physiology*, Cambridge and London, vol. xviii, pp. 230-276) have shown that extracts made from the suprarenal glands of the calf, sheep, guinea-pig, cat, dog and man have a similar action. Diseased glands from cases of Addison's disease were found by them to be inert. The doses used intravenously were equal to from one-fourth to three grains of the fresh gland, and the former dose exercised a marked physiological effect on the circulation of dogs. The active principle, whatever it is, must therefore be recognized as an exceedingly powerful body, if we reflect that of this one fourth of a grain about eighty per cent is water, and another very large proportion must consist of the proteids, etc., of the gland substance.

These authors found that the subcutaneous injection of large doses of extract (equal to fifteen grains of fresh gland) in dogs only produced a temporary stimulation of the heart and respiration, while the temperature was slightly raised. Rabbits died after smaller doses with symptoms of respiratory failure. They found that after intravenous injection of small doses the blood-pressure was raised to a remarkable degree, and this they attribute to a marked stimulation of the heart muscle and arterioles. The skeletal muscles were also stimulated, and hence they conclude that one function at least of the gland is to maintain tone in the voluntary and involuntary muscles by means of its secretion. In their opinion this view is strengthened by the fact that removal of the suprarenal bodies causes weakness of the heart and muscular system generally, with great want of tone in the vascular system.

Gottlieb (*Arch. für Exper. Path. und Pharmacol.*, Leipzig, 1896, bd. xxviii) comes to the conclusion that the marked stimulation of the heart and arterioles is probably due to an action on their intrinsic nervous ganglia, rather than to a direct action on the muscu-

lar fibres. He states also, what had been previously observed by Cybulski, that administration of the extract by the mouth or subcutaneously had very little effect on the circulation, compared to what is observed after intravenous injection. The obvious inference is that the active principle is destroyed by the tissues. Previous researches by Pellacani and others had demonstrated that suprarenal extract was very poisonous to all kinds of animals, while Brown-Sequard, Tizzoni and others had shown by ablation experiments that the glands were essential to life, and that excision is followed sooner or later (four to thirty-six months) by emaciation, muscular weakness, and death. Pigmentation was observed in animals which died slowly, and the whole symptoms are analogous to those of Addison's disease in man.

A very complete critical summary of our knowledge of the suprarenal bodies and their relation to Addison's disease has been given by H. D. Rolleston in the Goulstonian Lectures for 1895 (*British Medical Journal*, London, 1895, vol. i), in which, after a very full discussion, much too long to be reproduced here, he concludes that Addison's disease may theoretically be dependent on (1) suprarenal inadequacy, or (2) chronic toxemia, due to non-removal from the blood by the suprarenal glands of toxic products of tissue metabolism. He is of opinion that the first view is alone tenable in the light of our present knowledge, and that the glands in Addison's disease fail to secrete a substance which is essential to health and life. What the exact function of their secretion may be is not yet known—whether its absence leads to a toxic condition of the blood which poisons the other tissues, or whether the want of it leads directly to an atonic state of the whole muscular system, are questions which for the present must be left open. These and many other important points, such as the origin of the pigment, are still very obscure, and further investigation may of course greatly modify our present opinions.

The treatment of Addison's disease by suprarenal glands and preparations has aroused considerable interest. Oliver has treated two cases with suprarenal preparations given by the mouth ("Pulse Gauging," 1895). He used pills in which one grain of dried extract corresponded to fifteen grains of the fresh gland, and an alcoholic solution of which one minim equaled one grain of gland. The results in both cases were encouraging: there was a gain in weight, lessening of pig-

mentation, and disappearance of nausea and anorexia. Rolleston states that a case of his has also greatly improved in much the same directions. He thinks that "a dose equal to forty-five grains of the original gland, spread over the twenty-four hours, is certainly not too much."

Stockton (*Medical News*, Philadelphia, 1895) gave two suprarenal capsules of the sheep daily raw, and after three months there was a very distinct improvement in the bronzing and in the general condition of his patient.

Lloyd Jones reports a case (*British Medical Journal*, London, 1895, vol. ii) in which suprarenal tabloids and extract were given, and where after four months' treatment "the excessive pigmentation has quite disappeared, and she appears to be practically well."

Dr. Sansom reports a doubtful case in which arsenic did no good, while the man improved greatly on two tabloids of suprarenal gland twice daily. When the treatment was discontinued the patient relapsed. In none of these cases is mention made of the probable lesion in the suprarenal glands.

M'Lauthlin (*Medical News*, Philadelphia, 1895) treated a case unsuccessfully with an extract, and after death fibro-caseous disease of the suprarenal bodies was found.

Sir Dyce Duckworth ("Twentieth Century Practice of Medicine") states that Sir Thomas Grainger Stewart has treated a case without any beneficial results.

The writer has had an opportunity of treating two cases of Addison's disease with suprarenal bodies. In one of these no improvement whatever occurred, and post-mortem tubercular changes in the lungs and suprarenal capsules were found. In the other, where the bronzing and general asthenia followed an injury to the back, marked improvement in the color of the skin and in the general condition took place in two months, when three and then six raw sheep's capsules were given daily. The improvement has now been maintained for twenty months under the constant administration of an extract. When it is omitted the patient relapses, but he is now able to follow his ordinary occupation.

Byrom Bramwell (*British Medical Journal*, London, 1897, vol. i) gives the details of a case in which after death the suprarenal bodies were found to be replaced by masses of fat. He was treated twice weekly by the hypodermic injection of a dose of extract, equal to a quarter of a rabbit's suprarenal capsule, and later a smaller dose was given

every second day by the mouth. Marked improvement followed.

It may be noted that as yet no case has been reported in which complete and permanent recovery has taken place, although the subjective and objective symptoms are often very materially improved. Cases of fibro-caseous degeneration seem to derive no benefit, while those in which atrophy of the glands may reasonably be diagnosed give much better results.

Oliver (*British Medical Journal*, London, 1895, vol. ii), from his observations of the effects of suprarenal extract in contracting arterioles and from clinical observation, suggests that the extract may be usefully given in anemia, cyclic albuminuria, diabetes mellitus and insipidus, exophthalmic goitre, heart disease, and capillary hemorrhage.

#### THE TREATMENT OF CHILBLAINS.

M. GEORGE THIBIERGE contributes a long article on this subject to the *Journal des Praticiens* of January 9, of which the following is the substance:

Chilblains, he says, are always painful in a more or less marked degree; their development is preceded by pruritus and a sensation of heat and of pricking; after they have become established they are also accompanied by the same sensations, which are tolerable when the diseased parts are exposed to cold, and extremely painful when subjected to heat; changes from cold to heat, and frequently rest in bed, arouse and increase their intensity; this symptom is of great diagnostic value. Even simple pressure is extremely painful, however slight the lesions. To this may be added tumefactions and ulcerations, thus rendering chilblains veritable infirmities.

Chilblains may be followed by a general tumefaction of the regions attacked, which is the result of local asphyxia even more than of the chilblains themselves. In the hands this tumefaction gives an entirely peculiar sausage-like aspect to the fingers, somewhat like that resulting from acromegaly.

Another consequence, still more rare, of chilblains is the production of localized and persistent vascular dilatations, true acquired capillary angiomas, on which there are small papillomata resembling warts.

The erythematous congestion of the hands, or rather of the extremities, which in certain subjects appears when cold weather sets in, and is one of the forms of what is known as

Raynaud's disease, is an important predisposing cause. In young people the insufficiency of peripheral circulation which it causes should be attributed especially to the slight paralysis of the vaso-motor system; in older persons it arises principally from atheroma, which impedes the local circulation, the effects of which are further marked by weakness of the myocardium and by the blood dyscrasia depending upon senile interstitial nephritis. It must be noted, moreover, that this asphyxia of the extremities is not necessarily followed by chilblains, and that they may develop in non-asphyxiated regions.

Defective or insufficient alimentation singularly facilitates the development of chilblains; inactivity also helps their development; cold, aided by defective conditions of circulation and of the functions of the economy, is the cause of chilblains, and it exerts still greater effects when the skin is wet or not properly dried, or when it is suddenly succeeded by heat. Chilblains may often be prevented if the parts which have been exposed to the cold are slowly and progressively warmed; the vascular dilatation which provokes the too rapid return of heat is followed by a paralysis of the blood-vessels, which shows itself sometimes by erythema and sometimes by gangrene; this mechanism intervenes not only in the production of chilblains, but in that of the functional troubles which accompany them.

The conditions which predispose to the development of chilblains show what importance a general tonic medication should have in their treatment and their prophylaxis. Cod-liver oil, preparations of iodine, iron iodide, and arsenic are indicated in all cases, and their regular and prolonged employment often leads to the attenuation, in a very great proportion, of the tendency in certain subjects to chilblains.

Quinine sulphate often renders great service in an affection in which the circulatory troubles of the extremities play an indisputable part. M. Besnier recommended the prolonged employment of this medicament, with which he occasionally obtained unhopd-for results. M. Brocq found good results from the association of quinine sulphate and of ergotin in doses of from 0.75 of a grain to three grains with powdered digitalis (from 0.2 to 0.3 of a grain) and the extract of belladonna (from 0.03 to 0.06 of a grain) in the form of pills, the employment of which was prolonged during the entire winter.

Inhalations of oxygen, which accelerate nutritive changes and often give remarkable results in asphyxia of the extremities, are indicated in subjects in whom the sluggish condition of circulation predisposes them to chilblains.

Regular exercise, walking, gymnastics, cold affusions and general stimulating lotions are also extremely useful prophylactic means in the majority of subjects in whom a former experience has demonstrated their tendency to the development of this infirmity.

The part which local causes, and particularly the direct action of thermic agents, play in the development of chilblains furnishes prophylactic indications which should not be neglected. The hands should be covered with thick and sufficiently warm gloves, but rough woolen gloves should be avoided. They, like the feet, should be washed in warm water (not in cold) and carefully dried on a towel (never before a fire), and then powdered with starch or talc in order to remove every trace of dampness. The hands should not be allowed to remain too long in cold or soapy water. Shoes and stockings should be comfortably large, as the pressure of the foot on the shoe favors the action of the cold; they should be thick enough to protect the feet against the action of the cold, especially when there is snow on the ground. If sweating accompanies the chilblains, repeated foot-baths must be resorted to and the parts powdered with starch or talc to which has been added from one to two per cent. of salicylic acid.

Foot-stoves should be absolutely proscribed, and the feet should never be dried or warmed by a fire; if they are cold the best way to warm them is to rub them with a slightly warmed piece of flannel.

Foot-baths containing small quantities of astringent decoctions of walnut leaves, of ash leaves, of eucalyptus leaves, of oak bark, etc., of from five to six minutes' duration, constitute a very useful means of preventing frost-bites by increasing the resistance of the skin.

The employment of camphorated soap, or of a camphorated ointment (seventy-five grains of camphor and an ounce of vaselin), applied at night has often seemed efficacious to hinder the development of chilblains in subjects predisposed to them. The same results have been obtained by gentle friction with a piece of flannel saturated in strong spirit of camphor, according to M. Besnier.

If the lesions are not very intense, and



characterized only by red patches not very extensive and scarcely prominent, the preceding modes of treatment are indicated, particularly the local astringent baths, the camphorated preparations, and the absorbent powders. But if the lesions are pronounced, the patches large and prominent, these modes of treatment must be associated with or replaced by other topical agents, ointments, or collodion. The substances which are incorporated in them are intended to increase the consistence of the ointment, such as zinc oxide; or to allay the pruritus, such as opiates, carbolic acid, and menthol; or they are endowed with resolvent qualities, such as lead salts, of which the most commonly used is lead subacetate, which is anticonsmatic.

When the lesions are constituted by red elements, with little or no infiltration of the skin, zinc-oxide ointment such as the following, to which has been added a small quantity of carbolic acid or menthol, will suffice to allay the pruritus and cause the rapid disappearance of the lesions:

- ℞ Zinc oxide, 150 grains;  
Carbolic acid, 8 grains;  
Vaselin,  
Lanolin, of each 225 grains.

M.

Another formula is this:

- ℞ Zinc oxide, 150 grains;  
Menthol, from 3.5 to 4.5 grains;  
Vaselin,  
Lanolin, of each 225 grains.

M.

If the elements are more prominent, more inflamed, the preferable treatment is with an ointment containing lead salts, such as the following:

- ℞ Lead subacetate, 30 grains;  
Carbolic acid, 8 grains;  
Zinc oxide, 225 grains;  
Vaselin,  
Lanolin, of each 300 grains.

M.

Or the following formula may be employed:

- ℞ Lead subacetate, 30 grains;  
Bismuth subnitrate, 90 grains;  
Rousseau's laudanum, 15 grains;  
Vaselin,  
Lanolin,  
Lard, of each 150 grains.

M.

These formulæ may be modified.

Simple elastic collodion, or collodion combined with iodine or salol, or better still the collodion made with acetone, which makes a better covering and does not produce the fissures which occur so frequently after the

use of ordinary collodion, is an excellent protector for the diseased surfaces, and allays the pruritus; but it should never be applied to ulcerating chilblains or to those on which blisters have formed.

The following formula is recommended:

- ℞ Pyroxylin, 45 grains;  
Acetone, 300 grains;  
Ether,  
Alcohol, of each 150 grains;  
Castor oil, 60 grains.

M.

When the chilblains resist these topical applications, ointments containing silver nitrate, or painting with a fifty-per-cent. solution of silver nitrate or with the tincture of iodine, often hastens their resolution; these substances, however, cannot be used on the face, because of the discoloration they cause.

If blisters form they should be opened aseptically and covered with a dressing of vaselin and boric acid, or with freshly prepared Carron oil to which has been added two per cent. of carbolic acid. If these blisters have been ruptured, or the chilblains are ulcerated, after bathing the parts with a weak solution of corrosive sublimate they should be covered with a dressing of vaselin and boric acid or with non-irritating plasters, such as zinc oxide, simple boric acid, and dermatol plasters, or Vidal's red plaster. If the ulcerations do not disappear they should be touched every two days with a silver-nitrate stick, or with tincture of iodine, and dressed with camphorated brandy, with Van Swieten's liquor diluted one-half with water, or with aromatic wine. These dressings should be carefully applied, particularly on the toes and between the fingers, where, according to M. Besnier, it is well to place small tampons of absorbent cotton.—*New York Medical Journal*, Jan. 30, 1897.

#### PRESCRIPTIONS FOR TAPEWORM IN CHILDREN.

- ℞ Peppermint water, 2 ounces;  
Ethereal extract of male-fern, 1½ drachms;  
Essence of turpentine, 15 minims;  
Syrup of orange flowers, 1 ounce.

This is to be taken at one dose. It must be well shaken.

(We regard this dose of ethereal extract of male-fern as being too large).

Or in its place the following prescription may be employed:

- ℞ Syrup of mint, 6 drachms;  
Castor oil, ½ ounce;  
Ethereal extract of male-fern, 30 minims.

Or,

- ℞ Etheral extract of male-fern, 1 drachm;  
Calomel, 6 grains;  
Gelatin or sugar, a sufficient quantity for one dose.

Or,

- ℞ Tamarind pulp, 1 ounce;  
Powdered kamala, 1½ drachms;  
Lemon and sugar, a sufficient quantity to make a confection.

Or,

- ℞ Tincture of kamala, 2½ drachms;  
Syrup of orange flowers, 1 ounce;  
Peppermint water, 2½ ounces.

To be taken at one dose.

After the administration of any one of these prescriptions, unless a purgative is contained in them, from a dessertspoonful to a tablespoonful of castor oil or some senna should be given to remove the poisoned worm.

—*Journal des Praticiens*, Dec. 12, 1896.

#### TAKA-DIASTASE: ITS USE IN CERTAIN FORMS OF DYSPEPSIA AND GOUT.

The *Liverpool Medico-Chirurgical Journal* for January, 1897, contains an article on Taka-Diastase as a digestive ferment written by Dr. WILLIAM ARMSTRONG. He points out that it has become so much a matter of routine to rely upon pepsin for the relief and cure of dyspepsia that the influence of the active principles of the salivary secretion on the process of digestion has been somewhat lost sight of. It is only when cases of acidity, flatulence, etc., are met with which resist the action of digestive ferments of the pepsin group that attention is specially directed to the influence of the primary digestive agent. He has been much interested, during the treatment of a large number of gouty patients, to find that although many of them had for months been deprived of almost all butcher's meat and other nitrogenous foods, the acidity, flatulence, digestive discomfort and general goutiness had gone on much as before.

Considerable light has been thrown on this subject by the success of the so-called "Salisbury" dietary; for under the exclusive use of red meat (aided by hot water drinking when the stomach is empty) many intractable cases of chronic gout and dyspepsia have been speedily and permanently relieved. This fact certainly points to one of two things—either that red meat is not the harmful agent in gout that many have supposed it to be, or, what he regards as more likely, that the admixture of the meat with the carbohydrates interferes with the due digestion of each.

The early loss of the masticating teeth, which we now so often find, the haste with which meals are so frequently taken, and more especially the custom of taking considerable quantities of hot fluids, such as tea, with food, give rise to a tendency to wash the food quickly down the first passages, and so prevent it being thoroughly mixed with the saliva; and thus, as the gastric juice has no converting influence over the starchy elements, they become decomposed, giving off a large quantity of gas and forming amylomptomaines, which are almost if not quite as harmful as those ptomaines formed from nitrogenous foods. The elimination of the starchy elements of the food is, however, a heavy price to pay for relief from the slighter functional symptoms; and it is not until serious disease becomes evident that patients will submit to this somewhat severe and irksome form of dietary, which, as it often causes considerable and rapid loss of weight, is not suitable for a large proportion of the cases met with in daily practice. As is well known, malt extract is a potent starch-converting agent, but the amount of contained sugar makes it a double-edged weapon, and it often does more harm than good in cases of gout and dyspepsia.

Some twelve months ago the writer was induced to give a trial to "Taka-Diastase"—a brown powder, free from odor, with a slight and not unpleasant taste, for which was claimed the power of converting one hundred times its weight of dry starch.

This powder was discovered by Mr. Takamine, a Japanese chemist, who, while studying in Glasgow, became greatly interested in the process of malting, which he came to consider as unduly tedious and costly. On returning to Japan he, with the assistance of Professor Atkinson, of Tokyo University, commenced a very exhaustive series of experiments, with a view to finding a class of plant capable of converting the starch in cereals into sugar, and the sugar into alcohol. He at last found what he required in the fungus of the species *Eurotium oryzae*, belonging to the *Aspergillus* family. This microscopic fungus he cultivated on the flakes of hydrolized wheat bran, and succeeded in separating the diastatic and fermenting properties, so that either could be used without the other.

The writer has given the diastatic powder in doses of from three to five grains in a considerable number of cases, both of amyloseous dyspepsia and of the form of gout which seems

to be caused by that defect, and with excellent results. He has usually given it in powder with or immediately after meals, especially those with which much starchy food is taken; but it can also be given in mixtures, if neutral or slightly alkaline. Flatulence and acidity are greatly diminished, there is much less strain put upon the comparatively weak intestinal digestive processes, and the gouty symptoms are much relieved.

Taka-Diastase has never in the writer's experience caused the slightest discomfort, loss of appetite, or digestive disturbance: the dose is so small, and the drug itself so free from unpleasantness, that patients take it readily.

The subjects of amylaceous dyspepsia should of course masticate their food slowly and completely, and should also avoid the taking of much fluid with meals,—such liquid as is necessary for the bodily processes being taken one hour before food, preferably in the form of hot water, and that required with meals being taken at the end thereof.

The author is convinced that in Taka-Diastase we have at command a remedy of the highest value, which is capable of giving excellent results in many obstinate cases of dyspepsia, auto-poisoning with amylo-poisoning, and the resulting train of symptoms so frequently classed together under the names of latent and suppressed gout.

#### *THE ABUSE OF "ASTRINGENTS" IN THE TREATMENT OF EYE DISEASES.*

EDGAR A. BROWNE in the *Liverpool Medico-Chirurgical Journal* for January, 1897, says that the "astringents" in general use are the sulphates of zinc, alum, and copper, the chloride of zinc, nitrate of silver, and acetate of lead. The absence of sulphate of iron will be noticed from this list; nobody prescribes sulphate of iron for eye diseases, but it is extensively used for general purposes. Nothing could more clearly indicate the capricious and irrational mode in which these remedies have been adopted. Regarding these substances not as astringents but as antiseptics, the zinc sulphate may be regarded as of good general utility. It is popular, common, and cheap—all points in its favor. Against alum he has conceived a dislike—he can scarcely put his reasons in words. When he first joined the staff of the Liverpool Eye and Ear Infirmary, it was the remedy most in use. Seldom a case escaped it at some stage or other of its course. He has a distinct preference for the

copper sulphate in the muco-purulent and purulent conjunctivitis that runs through schools, and in all early stages of trachoma. For mild cases of ophthalmia neonatorum the chloride of zinc has been used for many years. It will be remembered that it was one of the earliest antiseptics. Surgeons used to pump it freely into operation wounds; and it began to be used empirically, and not as an antiseptic. The true nature of ophthalmia neonatorum was not suspected. Though there are better, it may still be regarded as an excellent remedy, belonging to the most valuable class of chlorine compounds, whence come many of our best disinfectants. It has the disadvantage of being extremely irritating. If used at all too strong it causes the lids to swell, and gives rise to a copious discharge of mucus. This can be verified on the healthy eye.

The writer has already referred to the discharge of mucus as disadvantageous. It is so because it forms a habitat peculiarly suited for germ culture. An antiseptic that gives rise to mucus partially defeats its own object. It is in the removal of this favorable soil that lotions of boracic acid or borax prove useful. They act as detergents, their antiseptic power being feeble in the extreme.

Nitrate of silver cannot be dispensed with in the routine treatment of severe purulent ophthalmia in the adult or the new born. The conjunctiva will stand a good deal of the nitrate, but the cornea is extremely intolerant of it. If the epithelium is abraded, or ulceration occurs, it gives rise to white opacities. For reasons which cannot conveniently be detailed here, it seems to exercise an unfavorable influence on corneal ulceration. If used, too much care cannot be exercised in applying it religiously to the whole surface of the inflamed conjunctiva. Generally it is flooded on the cornea where it is not wanted, and it never reaches the superior conjunctival cul-de-sac where it is essential.

A few words on antiseptics which have no spurious reputation as "antiseptics" to create confusion: The perchloride of mercury has a good clinical and laboratory reputation; it has the advantage of being cheap and readily procurable, a great point in the treatment of common and wide-spread diseases; it may be used in solutions of from 1 to 5000 to 1 to 10,000 in all forms of ophthalmia, and as a precautionary lotion; it has the disadvantage of being irritating, and occasionally giving rise to permanent white opacities of the cornea. This is especially the case when cocaine is used, and many surgeons are aware

of the drawback in cataract extractions. The writer has seen two cases of ophthalmia neonatorum, where the cornea was covered with dense dotted white opacities, due to the action of the perchloride.

A better remedy is the oxycyanide of mercury, which may be used in solutions of 1-to-500 or 1-to-3000. It is not kept by many chemists. Browne has never seen nor heard of its causing any opacification of the cornea; and it does not, if cautiously used, injure instruments. It is extremely efficacious in all muco-purulent cases. Panas' solution of the biniodide of mercury is of great utility, and seems to possess more rapid penetrating power than the foregoing, and therefore is applicable to cases with corneal complications. It smarts a good deal, but gives rise to little permanent irritation, even if applied to ulcerated surfaces.

Antiseptic remedies that may be trusted to infiltrate the cornea, and pass into its substance or the interior of the eyeball, are much to be desired. Atropine, eserine, and their homologues are manifestly absorbed in a few minutes, but they have not even the feeblest antiseptic powers. The only two drugs to be at all depended on are quinine and pyoktanin. Both are absorbed slowly, but still they are absorbed, and have been observed modifying the appearance of the tissues.

Eyes that have been copiously treated with quinine have been known to present the peculiar bluish fluorescence characteristic of the drug in solution. Mr. Mackinley showed a case of a man—who if not born in the purple at least lived in it, at an aniline dye factory—whose cornea (and other tissues) were deeply tinted like stained glass. Neither drug can be rated high as antiseptics, but they are extremely useful in infiltrations and ulcerations of the cornea. So also may it be said of the time-honored remedy—the yellow oxide of mercury. This is one of our most valuable applications in chronic cases, but exceedingly treacherous. Its quality varies extraordinarily. Some samples irritate to a remarkable degree. Nothing in the external appearance has come under the writer's observation that might serve as a warning, but there are certainly subtle differences in the chemical constitution of the drug, as well as variations in the sensitiveness of the patients. With all its drawbacks, it has a wide range of utility. Remedies superior to the foregoing may be, probably will be, discovered. Even if that day arrives, we shall benefit but little if an empiric and

routine treatment remains the rule. The foundation of all rational treatment is twofold: (1) diagnosis; and (2) a knowledge of the pathology and natural course of the affection. It is no use trying to learn about drugs if we don't know the diseases. We may prescribe the very latest of the coal-tar derivatives of the *fin-de-siècle* advertising druggist, and be no better intellectually than the apothecary of the Middle Ages.

#### THE ADMINISTRATION OF CREOSOTE.

The *Journal des Praticiens* of December 12, 1896, recommends the following formula for the administration of creosote, the prescription being put up in cachets:

℞ Creosote,  
Benzoin, of each 15 grains;  
Powdered charcoal, 1½ drachms.

Triturate the creosote and the benzoin for a moment together and add by degrees the charcoal. This mass is then to be divided into five or ten cachets, each one of which will contain a proper dose. It is claimed that this prescription is very well borne by the stomach.

#### A PRESCRIPTION FOR INTERCOSTAL NEURALGIA.

According to the *Journal des Praticiens* of December 12, 1896, CHERON recommends the following prescription for intercostal neuralgia associated with uterine disturbances:

℞ Tincture of gelsemium, 100 drops;  
Simple syrup, 1½ ounces;  
Distilled water, 6 drachms.

Of this two to three teaspoonfuls may be taken twice or thrice a day.

[Such a prescription ought not to be used if the heart is at all feeble.—ED.]

#### AMYLIFORM.

Amyliform is a combination of formaldehyde and starch and is a white powder, without odor, insoluble in all liquids. It is, however, very stable and not easily altered. In the body it is decomposed slowly into formic aldehyde and starch. As is well known formic aldehyde is a useful bactericide, antifermentative and antiputrefactive, and it is stated that amyliform lends itself readily to the purposes of antiseptic surgery. Employed as a powder it diminishes in a rapid manner the secretions upon sores, particularly those which have a bad odor.

Langgard, who has used it both in major

and minor surgery, has never observed any symptoms of intoxication or local irritation from its use, such as sometimes follows the use of iodoform.—*Journal des Praticiens*, Dec. 12, 1896.

#### PLANTAR NEURALGIA.

JONES (*Liverpool Medico-Chirurgical Journal*, No. 32, 1897) calls attention to the silence of most text-books concerning this comparatively common and extremely obstinate complaint, and states that the discovery, description and treatment of the affection are almost entirely to be ascribed to American surgeons.

The disease may be defined as a painful affection of the plantar digital nerves, increased by pressure and usually located near the fourth phalangeal joint. The arches of the foot are usually described as two in number—the longitudinal and the transverse. The longitudinal may be considered to consist of two arches, an inner and an outer. The inner arch consists of the os calcis, scaphoid, three cuneiform bones, and the three inner metatarsal bones; the outer is made up of the os calcis, cuboid, and two outer metatarsals. The transverse arch is formed of the cuboid and cuneiform bones. The longitudinal arch has its concavity directed downward, and the transverse downward and inward. The two arches, longitudinal and transverse, taken together make up a semi-dome, and a part and parcel of the single structure. This semi-dome is opened internally, but closed behind externally and in front, and has its highest portion at the midtarsal articulation; thus the two feet placed together make a single dome.

These arches of the foot are essentially connected with the upright position. The weight of the body coming down the tibia enters the astragalus, the pressure points of which are directed downward and backward, and downward and forward. By the downward and backward lamellæ the weight of the body is continued to the ground through the os calcis and the heel, but the forward and downward carry it to the ground by the os calcis, cuboid, and metatarsal bones, all of which show definite pressure lamellæ. Taking the view that the arches are not separate, but merely integral portions of a whole, one is prepared to find that, along with a flattening of the longitudinal arch, the transverse arch is always affected, and *vice versa*. This statement can be proved to be correct by clinical observation. Associated with this

must be noticed the relative position of the heads of the metatarsal bones to one another. In a coronal antero-posterior section of a frozen foot, their position was: second in front of first by  $\frac{1}{4}$  inch; third behind second by  $\frac{1}{4}$  inch; fourth behind third by  $\frac{1}{4}$  inch; fifth behind fourth by  $\frac{3}{8}$  inch.

The head of fourth and that of fifth are considerably behind the preceding toe. Furthermore, one should note that the fourth branch of the internal plantar nerve communicates with the superficial division of the external plantar, and divides to supply the adjacent sides of the third and fourth toes. The position of this superficial division of the external plantar is of importance in the production of the pressure neuralgia of which this paper treats. In their course toward the toes the digital nerves, before they divide into the two nerves which will supply the contiguous sides of two adjacent toes, lie between, but not deeply between, the heads of the metatarsal bones. The fourth metatarso-phalangeal generally, but not invariably, is the affected joint; and Morton, in his original description of its pathology, advances a very plausible but only partially correct theory of its etiology. He says that the metatarso phalangeal joints of the first, second and third toes are found on almost a direct line with each other, while the head of the fourth metatarsal is from one-eighth to one fourth of an inch behind the head of the third, and the head of the fifth is from three-eighths to half an inch behind the head of the fourth: the joint of the third, therefore, is slightly in advance of the joint of the fourth, and the joint of the fifth is considerably behind the joint of the fourth.

The fifth metatarsal joint is so much posterior to the fourth that the base of first phalanx of the little toe is brought on a line with the head and neck of the fourth metatarsal, the head of the fifth metatarsal being opposed to the head of the fourth. On account of the character of the peculiar tarsal articulation, there is very slight lateral motion in the first three metatarsal bones. The fourth has greater mobility, the fifth still more than the fourth, and in this respect resembles the fifth metacarpal. Lateral pressure brings the head of the fifth metatarsal and the phalanx of the little toe into direct contact with the head and neck of the fourth metatarsal, and to some extent the extremity of the fifth metatarsal rolls above or under the fourth metatarsal. The mechanism of the affection, Morton asserts, becomes appar-

ent when the nerve-supply of the parts is considered. The branches of the external plantar nerve are fully distributed to the little toe and to the outer side of the fourth; there are also numerous branches of this nerve deeply lodged between these toes, and they are liable, Morton argues, not only to be unduly compressed, but pinched by a sudden twist of the anterior part of the foot. Any foot movement which may suddenly displace the toes when confined in a shoe may, he adds, induce an attack of this neuralgia.

Passing from the anatomy to a clinical description, three varieties may be described: (a) Plantar neuralgia of the first degree; (b) plantar neuralgia of the second degree; (c) plantar neuralgia of the third degree.

(a) In the first class one would comprise those cases where pain is occasionally felt along the metatarso-phalangeal joints during the performance of certain acts, but is immediately recovered from on desisting from such acts. In this stage there is no pain on pressing the spot. This stage is very common, and many readers will recall their own experiences in dancing or riding. It is a very usual complaint of the dancer that he has to rest because of aching behind his toes, and who of us has not met with the horseman anxious to rest his painful foot by riding without stirrups? In occupations where the body-weight falls on the anterior part of the foot, the affection is frequent, more especially where slippers or thin-soled boots are used.

(b) Those cases where characteristic symptoms quickly follow early attempts at walking after injury, due probably to a painful yielding of the transverse arch. The following case will represent a type of this variety: A young lady of twenty-four, of weak ligament type, whilst patting a horse after a ride, was trodden upon by it. The foot was considerably swollen, not very painful, and no lesion worse than pressure-bruising could be observed. She laid up for a week, and then walked about in house-boots or slippers. In less than three weeks she complained of considerable pain behind the fourth and fifth toes, and frequently had to rest. The pain subsided however almost immediately on abstaining from walking or standing. This pain lasted two months, and only left her when appropriate mechanical treatment was employed.

(c) The third or severe variety comprises those cases where symptoms appear idiopathically or remotely after injury, are persistent in character, do not yield to mechanical measures, and to all effect cripple the patient.

From an analysis of the foregoing cases one is enabled to formulate certain symptoms as constant, others as common, and some as exceptional. In all the cases a complaint was made of pain on walking. This pain was different in character from that of the so-called painful spasm of flatfoot, inasmuch as the pain in metatarsalgia is, in its intense area, strictly localized, while it is generally much more severe and paroxysmal. The painful flatfoot is oftenest found in the cold and bluish foot, while Morton's disease appears to be associated with healthy nutrition. In the milder varieties pressure has to be continued for a time before pain is manifest; in the severe cases less pressure produces much greater pain. In the first and second varieties the pain is neither so acute nor spasmodic as in the third. In all the reporter's cases there was pain on pressing either on the second, third, or fourth metatarso-phalangeals, and in the majority of cases opposite the fourth alone was the painful spot. This painful spot was in all cases best displayed by pinching the articulation between the finger and thumb. This could be effectively done without interfering with any of the other metatarsals, and is suggestive that Morton's explanation of the anatomy is not the whole truth. If the condition is usually accompanied by a broadened foot, due to a collapsing anterior arch during the act of walking, there would be separation rather than approximation of the metatarsal heads. Furthermore, if Morton's grinding theory is to explain all, why should a localized pinching applied to the metatarso-phalangeal alone give rise to pain. A radiograph may exhibit the broken line of metatarso-phalangeals, with the fourth as chief offender; but even making all allowances for the position of this articulation, it is not easy to conceive of a pure nipping of nerve as taking place where there is so much interspace. Taking into consideration also the fact that in thirteen cases grasping the front part of the foot in the hand gave relief, it is not in accordance with the theory of lateral pressure advanced by Morton, as such manipulation should increase, and not decrease, the paroxysm.

The explanation of the pain, having regard to the free mobility of the fourth and fifth, is much more probably a stretching or pressing upon rather than a nipping of nerve, and would accord more harmoniously with (a) yielding of the anterior arch; (b) relief experienced by circular compression; (c) pain

on local pressure. It is a theory which better accords with the exceptional instances of pain over the second and third joints. The mobility of the fourth and fifth allows of greater stretching when the transverse arch yields, and hence the frequency with which these joints initiate the trouble. Furthermore, most pressure in standing is placed upon the first and fourth metatarsal heads, while the frequency with which relief was obtained by frequently flexing the toes, which involves a lifting of the metatarsals, confirms one's belief that nerve pressure is the correct explanation of the lesion. In thirteen of the seventeen cases there was flattening of both arches. This suggests a weak ligamentous structure, and a stretching of the soft tissues of the waist of the foot. In thirteen out of seventeen cases circular compression below the instep gave relief. By this means, doubtless, the arch would be restored and the tissues of the sole relaxed. In the seven cases where a click in the joint gave a marked measure of relief, some subluxation—confirmed by lax ligaments—was suspected, but in only one case could the click be produced by manipulation.

That some neuritis is present in the severe varieties is suggested by the acute character of the pain, and by the statement volunteered by many that it felt like treading on something hot, and by the change sometimes noted in the nutrition of the toe. Particularly suggestive is the practice, during all stages of the affection, of rapidly flexing the toes; an act which cannot be performed without elevating the metatarsals, and relaxing the digital nerves from pressure and stretching.

Placing in order of frequency, symptoms which the author's cases have exhibited:

(a) Pain over metatarso-phalangeal region on standing or walking, only slightly relieved by mechanical contrivances.

(b) Pain on pinching the fourth metatarso-phalangeal.

(c) Relief of pain on circumferential pressure around base of toes, assisted still further by repeatedly flexing the toes.

(d) Sensation of walking on something hot.

(e) Presence generally of flattened arches of the foot.

In nearly all the cases reported prolonged treatment elsewhere had been adopted; and the complaint was generally ascribed to gout, rheumatism, or hysteria. We know how stretched or otherwise injured structures will

tempt a visit from any of the three diatheses; but apart from this possibility there was no evidence of its existence in the great majority of cases. In not one case was there any symptom of hysteria.

From an analysis of symptoms in seventeen cases it will be noted: That there was a history of injury in ten cases; that the third as well as the fourth joint was affected in three cases; that lateral pressure gave relief in fourteen; that reference was made to subluxation or reduction with click in seven; that there was flattening of both longitudinal and transverse arches in twelve; that ten patients were women, seven men; that three described sensation as if standing on something hot; that the ages ranged from twenty-four to fifty-eight, ten being between thirty and forty; that in one case symptoms were induced by pressure of callosities due to fracture; that in one case symptoms were induced by small fibroma of plantar fascia; that symptoms of gout, rheumatism, or hysteria were only found in two cases; that flexion of toes in the majority of cases was productive of relief.

The author's reasons for dissenting from the theory of causation as advanced by Morton may be summarized as follows:

1. The plantar digital nerves, instead of passing between the heads, lie on the transverse metatarsal ligaments, and when the foot is pressed upon, are pushed away from, not between, the bones.

2. It is not proved that the anatomical position of the heads of the third, fourth and fifth metatarsals is favorable to a nipping of the nerve on lateral pressure; on the contrary, there would be less escape were the metatarsal heads in absolute line.

3. That in the majority of cases a painful spot can be found and made intensely sensitive by pinching with the thumb on the dorsal and the forefinger on the plantar surfaces; that such spot is usually quite local, and would not respond to such pressure if, as asserted, the pinched and sensitive nerve were placed between the bones.

4. That in most cases a broadened foot, due to collapse of the anterior arch, accompanies the affection, rendering the digital nerves less liable to compression. This fact, in conjunction with another, viz., that a broad soled boot hardly gives any relief in the third degree of plantar neuralgia, is strongly at variance with Morton's theory.

5. That in a large number of cases grasping the foot around the metatarsal heads, thus approximating them, relieves the spasm.

6. That frequent flexing of the toes is an instinctive method of relieving spasm, the flexing of the toes being accompanied by slight approximation of metatarsal heads.

7. That manipulations of the foot by the surgeon, other than applying direct local pressure, rarely produce the pain.

Clinical observations accord much better with a theory of treading upon, rather than with that of pinching, a nerve; three anatomical facts strengthen this theory:

(a) The proximity to the painful area of the communicating fourth branch of the superficial division of the external plantar.

(b) The collapse of the anterior arch in most of the cases.

(c) The bulk of superincumbent body-weight in walking on the toes is borne on the first and fourth joints.

Tubby, in describing his cases, draws attention to the existence of corns over the painful areas. In not one of the writer's cases was this noticeable. When corns are found, however, they simply denote pressure-spots, and are situated over bony prominences. They point to pressure upon the nerve between the corn and articulation, and support the theory the author advances in contradistinction to the nipping of nerve between bone. His cases of plantar neuralgia due to fibroma of the plantar fascia and fracture of the metatarsal bone equally support his contention. Gibney, in an interesting article in the *Journal of Nervous and Mental Diseases*, states that if the bases of the metatarsal bones are tightly grasped, the distal ends are separated, and the nerves are no longer compressed. The writer's experiments do not bear out the conclusion Gibney has recorded; and even were it otherwise, the majority of patients obtain relief not by compressing the bases, but by compressing the heads, of the metatarsals.

If any normal foot be examined one will find that the two prominent spots upon which most of the body pressure is borne are opposite the first and fourth metatarsal joints. The fifth is also prominent, but is so mobile that it can be easily pushed to one side. This is a strong reason, therefore, why the fourth metatarsal should most frequently supply the painful area. The third and fourth become affected generally in cases of collapse of the anterior arch, where, instead of being concave on the plantar aspects, the metatarsals present a convexity, the second and third articulations forming the most prominent portion of the convexity.

From the persistence of pain in certain

cases, even after pressure has been withdrawn, and from the immediate sensitiveness when walking is practiced, one is inclined to believe that a neuritis of the plantar nerves involved exists in the more acute cases. This view is confirmed by the fact that even after a long rest, pinching the spot between the finger and thumb gives rise to severe pain.

The treatment of plantar neuralgia must vary with the stage of the affection. In the first stage the patient will do well to take the warning given, and by appropriate precautions prevent the development of the affection. This is done by attention to certain details:

(a) To abstain from continuing any action which produces the pain.

(b) To increase the depth of the inner aspect of heel, in order to produce slight inversion of foot.

(c) To wear thick soles, with well-fitting insteps, and roomy around the heads of the metatarsals.

(d) To insist that the sole be at least one-fourth of an inch thicker a little behind the bases of the metatarsals.

The preventive methods as applied in the first stage should also be directed to the cure of the second stage, with certain additions. These additions may be any or all of the following measures:

(a) A thick bar placed about half an inch behind the metatarsal heads.

(b) A band of non-irritating plaster around the instep.

(c) Massage of foot, with contrast baths of hot and cold water.

(d) Elevation of the foot of the bed at night.

The advantage of thick-soled boots is obvious; they prevent excessive mobility at the articulation, and minimize sharp bony pressure upon the nerves. The boots should be roomy at the toes, not merely to give more room to the metatarsal heads, but to allow freedom to flex the toes, and to perform other movements to avoid pain. The heel of the boot is slanted to correct the common tendency to valgus and to vary the pressure point. In cases where there is no collapse of the arch the heel may with advantage be elevated on the outer side to deviate body pressure.

Most important of all, however, is the thickening of the sole in the early cases (or bar in later) behind the metatarsal heads. This gives rest to the articulation, even during the act of walking, and is of more ad-



vantage than any other mechanical detail of treatment. This alteration, even in the case of inflamed or gouty toe-joint, allows the patient to travel in comparative comfort, and should always be prescribed in all the stages of plantar neuralgia—for a time even in those cases where an operation has been performed.

In the third stage of the affection nothing short of an operation is satisfactory. By this it is not meant that on no occasion can an advanced case be relieved by mechanical measures; on the contrary it can, and often is. But operative measures are so safe and simple, and other measures so prolonged and troublesome, that most patients do not hesitate which course to accept. Of operations, only three are radical and efficient: (a) Exsection of metatarsal head; (b) excision of joint; (c) amputation of metatarsal head and toe.

Short of these radical measures, we may employ any or all of the following methods: (1) Actual cautery; (2) heated needle into painful site, to destroy nerve; (3) hypodermic injections of carbolic acid; (4) part exsection of digital plantar nerve.

It will be noted that each of these surgical practices involves the plantar or walking aspect of the foot, a fact which seriously modifies its utility.

Of the radical operations, he strongly advocates the superiority of exsection over excision and amputation. It is simple, safe, and sure, and can be performed in the following way:

After the part has been carefully aseptitized an incision should be made a little over an inch in length, starting above the metatarso-phalangeal joint, and extending over the middle line of the toe. The extensor tendon is divided, the capsule opened, and the head of the metatarsal dissected out by a blunt instrument. With fine bone nippers the head is removed and the flexor tendon below divided. The wound is then stitched, and as a rule no vessels need securing. The after-treatment consists in keeping the patient in bed for about ten days, with the foot elevated. Massage should then be commenced, and the patient, with a bar under the foot, allowed to walk. There is usually nothing to hinder complete recovery in from five to six weeks, when boots such as earlier described should be prescribed.

#### DETECTION OF STONE IN THE BLADDER.

WILLIAM K. OTIS (*Journal of Cutaneous and Genito-Urinary Diseases*, February, 1897)

presents an instructive paper on the subject of stone in the bladder. The detection of stone in the urinary bladder is ordinarily a simple matter, presenting no extraordinary difficulties to the surgeon of average ability; but occasionally cases do occur in which the most skilful and experienced operators find themselves unable to establish a diagnosis in spite of every means at command. Stones, even of a large size, have escaped the most careful and minute examination by some of the most celebrated surgeons both of America and Europe. In actual practice the presence of stone is so frequently overlooked, especially when it complicates some other pathological condition of the bladder, that a thorough discussion of the various methods we have at our disposal for the detection of stone, and the relative utility of each, is timely.

The rational symptoms presented by patients with stone in the bladder are exceedingly variable in degree; they may all exist together, or one or more only may be present; or, even when the stone is of large size, there may be an entire absence of symptoms; or any or all of these symptoms may occur without the presence of stone. Otis calls attention to the fact that pain is usually the initial symptom, together with disturbances of micturition, and sooner or later cystitis almost invariably develops. Examination of the urine may demonstrate a larger amount of albumen present than would be accounted for by the amount of pus, although there may be no other indication of disease of the kidney, and this albumen will disappear after removal of the stone. Hemorrhage caused by the traumatic action of the stone on the bladder walls is a most frequent symptom, and according to Ultzmann always exists, though blood may not be present in sufficient amount to be visible to the naked eye. The bleeding usually occurs at the end of urination, and is more profuse after violent exercise. In cases of old patients with congestion of the prostate or hemophilia bleeding may become a very serious complication.

The author then refers to the value of the microscope as an aid to diagnosis in demonstrating the presence of crystals of lime oxalate, uric acid, or triple phosphate, indicating the nature of the stone, and the existence of pus and blood-cells, which may not be present in sufficient quantity to be recognized by the naked eye.

The history of the patient may give a clue as to the probability of the presence of stone.

Thus there may have been previous attacks of renal colic, in which one or more calculi were unaccounted for, pieces of catheter or bougies broken off in the bladder, the introduction of foreign bodies through the urethra, or through wounds of the bladder, or necrosis of neighboring bones, pieces of which may have ulcerated into the bladder and formed the nucleus for a stone.

Physical signs may exist without the presence of stone, and while they are exceedingly valuable, other methods are necessary to establish a positive diagnosis.

The most important method, giving definite information and easiest of application, is the use of the metallic sound or searcher. This instrument in general should be of small calibre, 15-20 F., have a short curve, in order that it may be readily rotated in the bladder, easily turned down behind a projecting prostate gland, and should be of sufficient weight to give it firmness in the hand. The presence of stone is definitely determined either by the sense of touch or an audible click given when the point of the instrument strikes the stone. Oxalates and urates give a loud, clear note, while phosphates and cystin stones only a feeble friction sound. There are many designs in the form of the searcher, differing from each other in more or less important particulars. The form most commonly used is one originated in 1860 by Sir Henry Thompson. This instrument consists of a silver catheter of 15 F., with a shaft ten inches long, having very thick walls to give the desirable weight, the eye being on the convex surface at its juncture with the staff. The curve is short, and the distal end slightly bulbous in form. The proximal end, or handle, consists of a roughened cylinder, one-half inch in diameter and two inches in length, to facilitate motion of the instrument. A scale with a slide is marked at this end of the instrument, to enable the operator to measure the size of stone. At the extreme end is placed a stop-cock to control the flow of fluid from the bladder. In 1891, despite the popularity of this instrument, Sir Henry became dissatisfied with it, especially with its ability to detect very small stones, the importance of which is so great to the patient, as they can then be removed with comparatively little risk; while if they are allowed to remain they are sure to increase in size, with a corresponding increase in the danger of removal. Sir Henry says: "There are two chief considerations to be borne in mind in designing such an instru-

ment: first, it should be so formed that all the necessary movements can be made with facility; that (a) the operator may pass it easily into the bladder and also know with certainty the direction of the beak when lost to view; and (b) that he should be able to rotate it with ease between the finger and thumb, when the beak is turned downward behind the neck of the bladder, especially when from enlargement of the prostate the well known depression exists there in which calculus is likely to lodge." The first condition is attained by using the flattened handle of a good old pattern; the second by placing close to it a small cylinder, a combination which now appears better than the entirely cylindrical handle which he originally introduced for lithotrites and sounds for the purpose named. The shaft of the sound should be rather slender, and the upper surface of the flat handle rough, while the lower is polished, so that the direction of the beak (upward or downward) is recognized by touch.

"Secondly, there should be special adaptation in the form of the beak to strike a very small concretion, and elicit a note therefrom. This is accomplished by flattening the beak a little in the opposite plane to that of the flat handle. It must be manifest to all on consideration that, long as we have been contented to employ a beak of cylindrical contour, this form is especially adapted to avoid direct impact on encountering a small calculus, since these bodies have mostly a nearly spheroidal or ovoid form, and naturally glance off when contact occurs." In fact, a blade flattened in the direction above described is more certain than a cylindrical one to make direct contact, and will transmit to the operator a greater sense of resistance and a more audible note. The wider measurement at the beak which he employs for ordinary purposes may be from 20-22 F., the narrower about 14-15, becoming a little thicker, though still flattened, toward the extremity. Such an instrument passes easily into any fairly healthy urethra, and in the presence of most forms of enlarged prostate, with rather increased facility in comparison with the ordinary form. It should never be forgotten in connection with seeking a small calculus that the dense fluid medium in which our instrument acts greatly increases the difficulty, as compared with the same action occurring in air, of obtaining rapid and direct contact with a small body of which the specific gravity is comparatively light; hence the need of flatness

and breadth of surface to ensure a direct blow, and the means of moving rapidly to ensure an audible note. It will be seen, however, that in this form of instrument the originator, in order to obtain solidity and distinctness of note, has abandoned one of the principal features which made his original searcher valuable—the ability to control the amount of fluid in the bladder, the instrument remaining *in situ*. In order to re-establish this advantage Otis has designed a searcher which exhibits all the points of Thompson's latest model, except that the shaft is hollow, the lumen being completely filled by a closely-fitting, polished rod connected with the flat portion of the handle, and held firmly in place by a bayonet catch. By this means all the firmness and weight of the solid instrument are retained, while if it becomes desirable at any time during the examination to vary the amount of fluid in the bladder, this may readily be done by removing the rod and allowing it to escape, or injecting a larger quantity.

Attempts to increase the volume of sound made by striking the stone are open to the objection that the added appliance makes the handling of the sound awkward. In certain cases the instrument may be made so sensitive that indications of stone are detected when none is present. The position of the patient is of importance. He should first be sounded while lying down, then standing, finally in the Trendelenburg position. Sometimes it is advisable to have him turn from one side to the other. The knee-elbow position may cause the stone to drop within reach. The bladder should usually contain about four ounces and should be examined both empty and distended. If the patient is hypersensitive the injection of choice is a  $\frac{1}{2}$ -per-cent. solution of cocaine, followed by instillation of four-per-cent. solution into the posterior deep urethra.

A favorite seat for calculus is the cavity of the bladder lying deeply behind the prostate, toward the cæcum. Ultzmann found that in eight out of ten cases in old men the calculi lodged in this region, and states that this pouch is due to the pressure of feces in the rectum which causes the entire bladder to be shifted towards the right and lifted and turned around its longitudinal axis.

The searcher enables us to determine the condition of the bladder walls, the mobility of the stone and its approximate size. The diameter is best determined by a small lithotrite. This instrument also enables us to

determine its chemical composition. An oxalate calculus will not yield. The shell of the urate stones is crushed, whilst the teeth sink readily into phosphatic or cystin calculi. On the teeth of the lithotrite will be found sufficient of the stone for chemical analysis.

When the presence of several stones is suspected the lithotrite should seize the one most easily grasped; it is then rotated and moved about in the bladder, when the operator can readily determine whether or not it comes in contact with other hard bodies.

The reasons for failure to detect stone in the bladder with searcher are: failure to introduce the instrument properly, the operator mistaking an enlarged prostatic sinus for the cavity of the bladder; low specific gravity of the stone, so that it flies away from the searcher without giving sufficient impact to be felt or heard; coating of the stone with mucous or blood-clots so that the characteristic sound and touch are absent, the condition being mistaken for a ruga of the bladder wall; encysted stone, where only a small portion may present in the bladder; and stones hidden in sacculations or pouches.

Mr. Buxton Browne has particularly pointed out a not uncommon and particularly annoying variety of the latter, which he terms the post-prostatic pouch, which consists in the horizontal portion of the trigonum of the bladder being pushed down between the enlarged projecting prostate in front, and a thickened and firm interureteral ridge behind. Where there is much intravesical prostatic projection the pouch may literally be roofed over by this prostatic outgrowth. Calculi in this pouch cause much pain, as the trigonum of the bladder has a larger nerve supply than any other portion. Lying as this pouch does in front of and below the orifices of the ureters, it is a perfectly-contrived trap for catching and retaining renal calculi upon their entrance into the bladder, and it is readily seen how favorably they are placed there for growth. If such a condition is suspected the beak of the instrument should not merely be reversed, but a thorough examination should be made of this extremity for the slit-like opening between the intravesical prostatic growth and the interureteral ridge, which may be the sole means of access to the large prostatic pouch. Browne has designed a sound with a beak like a flat-bladed lithotrite to make this investigation. It slips with great facility behind the projecting lobe of the prostate, allowing the place to be as fully

explored as is possible with any instrument passed into the natural channel.

Digital pressure through the rectum sometimes affords help in this exploration. Bimanual palpation is an extremely valuable means of detecting large calculi, and for finding small fragments the lithotrite tube and an aspirator are useful. The cystoscope is serviceable in cases in which its introduction is possible. In certain cases the diagnosis can only be cleared up by cystotomy. Should this be indicated the suprapubic operation is the one of choice.

#### *SURGERY OF THE LUNG.*

In the year 1710, nearly two centuries ago, Baglivus suggested that cavities in the lung might be successfully treated by operation. During the next century and a half an occasional operation was performed for the relief of pulmonary affections, but the surgery of the lung was unsystematic and largely experimental until Graux in 1850 reported the results of thirteen operations. All these cases were unsuccessful, however, and these results combined with other similar failures retarded the progress of pulmonary surgery for another quarter of a century.

A fresh impulse was given to this branch of surgery some fifteen or twenty years ago, when numerous successful experiments on animals, where portions of the lung, and even entire lobes, were excised, led to the hope that the same success might follow operations on the human lung. This expectation, however, has not been fully realized. Especially is this true in regard to tubercular process, which would offer a vast field for operative interference were success to follow such treatment. In this class of cases there seems to be but little hope of benefit to be derived from excision of tubercular foci. Reclus, in a most admirable address which he delivered before the French Surgical Congress in 1895, said: "Resection of the lung for tubercular disease seems to me condemned past all appeal." This judgment may be somewhat too severe, and yet it probably expresses the view of most conservative surgeons on this subject.

The results of simple incision into tubercular cavities have been somewhat more favorable. A number of patients have been benefited by this procedure, and in certain cases this operation seems indicated. A successful termination must be exceptional, however, as the original focus of disease must

still remain, and probably other foci also. Reclus reports eight such operations upon an equal number of patients, only two of whom died, while five were improved or cured. He states, however, that all were carefully selected cases. Laufert and Worth have calculated that out of 100 such cases, five die at once as the result of operation, ten die within a fortnight, fifteen more inside of a month, ten are improved, and zero represents the number of recoveries. Paget reports twenty-four operations, with nine deaths, five recoveries, and five improvements.

Operation for pyopneumothorax, as the result of tubercular ulceration, has been performed in a number of patients, in two of whom the opening was successfully closed by suture. The difficulty of locating the perforation must be great, however, and at best temporary relief only can be afforded.

The results of operation for growths in the lung are equally disappointing. When carcinoma or sarcoma occurs primarily the growth is in all probability so extensive before the diagnosis can be made that extirpation is impossible. In some cases where the malignant tumor has extended to the pleura and lung from the chest, it is possible that extirpation might be successfully accomplished.

In abscess, gangrene, and hydatid cysts, sufficient experience has accumulated to enable us to judge approximately of the risks of operation and of the chances of recovery. The results are becoming more and more favorable, and undoubtedly will be still more encouraging as soon as physicians can be convinced that operation is not attended with great risk, and that it offers a fair chance for recovery.

The results of operation for pulmonary abscess are certainly full of promise. Thus Fabricant reports thirty-eight cases, with twenty-nine recoveries and nine deaths. Reclus reports, out of twenty-three operations which have been performed within the past ten years, twenty cures and three deaths. The old idea that adhesions between the lung and parietal pleura were a requisite for successful operation is passing into oblivion. Adhesions are unquestionably of great advantage. When they exist the danger of infecting the pleural cavity and thus exciting pyopneumothorax is very slight, and the incision into the abscess cavity is a comparatively simple operation. Many successful operations have been performed, however,

where there are no such adhesions, as for example the cases recently reported by Smith and Frederick Treves in the *Lancet*, and by Northrup in the *New York Medical Journal*. If adhesions are absent the operations can be carried out in two stages: at the first, suturing the two pleural layers; at the second, opening the abscess after a delay of a few days. Unfortunately, however, such delay is generally inadmissible—it means death. The abscess must be opened at once. In certain cases the parietal pleura may be sutured to the lung, but generally the patient's condition is such that the operation must be rapidly completed, the pleural cavity being protected as well as possible by sponges and gauze.

In gangrene the mortality without operation is about eighty per cent. In certain cases of diffuse gangrene, operation is out of the question, and the case is hopeless. In circumscribed gangrene operation offers to the patient a fair chance of recovery. Excepting a few cases of gangrene occurring in young subjects, where the patch is small and near the apex, it is a question whether operation should not be advised as soon as the diagnosis is made in every case of circumscribed gangrene where the general state of the patient or some intercurrent disease does not render all treatment hopeless. As in abscess, so in gangrene; the operation, if otherwise indicated, should be performed, adhesions or no adhesions.

Another reason for delay which is sometimes advocated is that operation is not indicated until after the stage of consolidation has passed and deliquescence begun. The latter stage, however, is generally reached before the diagnosis has been made. Of course the patient may recover without operation, but the danger of sepsis, or the conversion of a circumscribed into a diffuse gangrene, more than counterbalances the risk of an operation. These risks are not very great, as may be judged from the statistics of Heydweiller, who collected forty cases treated by operation prior to 1892, with twenty-two recoveries, four improvements, and fourteen deaths. The more recent cases of Reclus number fourteen operations, eleven of the patients being cured, one being improved, and only two having died.

In cases of bronchiectasis the results of operation seem to be less hopeful. More than one cavity generally is present. One may be incised and healed, but others are left. Reclus reports twelve operations, eight of

which terminated fatally, four of the patients being improved, but none cured. Paget reports five cases, all of whom were improved, but he adds that all were exceptional cases. The conclusion of Truc seems correct: "When the cavity in the lung is the essential lesion, when the symptoms of septic absorption dominate the scene, when there is high fever and the patient is shaken by cough and exhausted by profuse expectoration, then without raising vain hopes and simply to alleviate suffering we may have recourse to incision of the lung. Now and again a marked improvement has been noted."

The results of operation for hydatid cysts have been most satisfactory, indeed more so than for any other pulmonary affection. Paget has collected forty-five cases thus treated, thirty-seven of the patients being cured, and six having died. In this condition operative interference is always indicated. — *Medical News*, Feb. 13, 1897.

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#### TOTAL HYSTERECTOMY AT TERM: CONTRACTED PELVIS.

PINARD and SEGOND treated a pregnant woman who was much deformed. There was scolio-kyphosis and asymmetrical pelvis; the anterior and posterior bony boundaries on the right side almost touched. It was agreed to let pregnancy go on to term and then to remove the uterus. On December 16, 1896, the operation was performed directly pains set in, term having been reached. A very free abdominal incision was made; then the uterus was pulled out, and immediately afterwards the upper part of the wound was closed by forceps applied to its edges so as to prevent prolapse of intestine. The elastic ligature was applied and the child extracted; it weighed ten pounds, and was living and strong. Then the placenta was extracted. Pressure forceps were applied to the edges of the wound in the uterus, and that organ was then amputated, with its appendages, by a continuous incision from left to right. On January 19 the patient was quite well. — *British Medical Journal*, Feb. 19, 1897.

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#### PRIMARY SARCOMA OF THE SMALL INTESTINE.

MERMET records the case of a woman aged thirty-two, who came under observation with attacks of painful diarrhea, and a tumor below and to the left of the umbilicus, which

was thought to be a pyosalpinx adherent to the intestine. Laparotomy was performed, and the tumor was then found to involve the jejunum at one meter's distance from the duodenum. The portion of intestine was resected, but the patient died the next day. The growth was twenty cubic centimeters in length, and had sharp margins. The affected part of the gut was enlarged to the size of the transverse colon, its lumen also being increased in size. The mesenteric glands were enlarged. At the operation no other secondary growths were seen, but there was no necropsy. The growth was a small round-celled sarcoma, starting on the submucosa, and had infiltrated all the coats of the bowel. The author lays stress on the points of distinction between sarcoma and lymphadenoma of the intestine. Reference is made to twenty-three other cases of sarcoma of the small intestine. It occurs much oftener in males than in females; usually between thirty and forty years of age, while lymphadenoma occurs earlier. In eight out of fourteen cases recorded by Balzer the growth was a small round-celled sarcoma.—*British Medical Journal*, Feb. 6, 1897.

REPORT OF SIXTY-NINE CASES OF AM-  
PUTATION AT THE HIP-JOINT BY  
THE WYETH METHOD.

JOHN A. WYETH (*Annals of Surgery*, vol. xxv, No. 2) records a death-rate of 13.9 per cent. in sixty-nine cases. The factors in the fatal cases were hemorrhage before operation, or shock. Of forty cases of sarcoma four died; of twenty-two cases of inflammatory bone disease three died. The efficiency of the method in controlling hemorrhage was demonstrated to be absolutely satisfactory in every instance but two. In one case the constriction was not tight enough; in another case the pins were not sufficiently strong.

Wyeth's method is as follows: The patient should be placed with the sacrum resting upon the corner of the operating table, the sound limb and arms being wrapped with cotton batting and thoroughly protected from unnecessary loss of heat. The limb to be amputated should be emptied of blood by elevation of the foot, and by the application of the Esmarch bandage, commencing at the toes. Under certain conditions the bandage can be only partially applied. When a tumor exists, or when septic infiltration is present, pressure should be exercised only to within five inches of the diseased portion for

fear of driving the septic material into the vessels. After injuries with great destruction, crushing, or pulpefaction, one must generally trust to elevation, as the Esmarch bandage cannot always be applied. While the member is elevated and before the Esmarch bandage is removed the rubber-tubing constrictor is applied. The object of this constriction is the occlusion of every vessel above the level of the hip-joint, permitting the disarticulation to be completed and the vessels secured without hemorrhage and before the tourniquet is removed. To prevent any possibility of the tourniquet slipping employ two large steel needles or skewers, three-sixteenths of an inch in diameter and ten inches long, one of which is introduced one-fourth of an inch below the anterior superior spine of the ilium and slightly to the inner side of this prominence, and is made to traverse superficially for about three inches the muscles and fascia on the outer side of the hip, emerging on a level with the point of entrance. The point of the second needle is thrust through the skin and tendon of origin of the adductor longus muscle half an inch below the crotch, the point emerging an inch below the tuber ischii. The points should be shielded at once with cork to prevent injury to the hands of the operator. No vessels are endangered by these skewers. A mat or compress of sterile gauze, about two inches thick and four inches square, is laid over the femoral artery and vein as they cross the brim of the pelvis; over this a piece of strong white rubber tubing, half an inch in diameter when unstretched, and long enough when in position to go five or six times around the thigh, is now wound very tightly around and above the fixation needles and tied. If the Esmarch bandage has been employed, it is now removed. Excepting the small quantity of blood between the limit of the Esmarch bandage and the constricting tube the extremity is bloodless, and will remain so.

In the formation of the flaps the surgeon must be guided by the condition of the parts within the field of operation. When permissible, the following method seems ideal: About six inches below the tourniquet a circular incision is made down to the muscles, and this is joined by a longitudinal incision commencing at the tourniquet and passing over the trochanter major. A cuff that includes everything down to the muscle is dissected off to near the level of the trochanter minor. At about this level the remaining

soft parts, together with the vessels, are divided squarely down to the bone by a circular cut. At this stage of the operation the central ends of the divided superficial and deep femoral veins, as well as the arteries, are in plain view and should be tied with good-sized catgut. This done, the disarticulation is rapidly completed by lifting the muscular insertions from the trochanters and digital fossa, keeping very close to the bone with knife or scissors, and holding the soft parts away with retractors. The capsular ligament is now exposed and divided, and by forcible elevation, adduction and rotation of the femur, it is widely opened, the ligamentum teres ruptured, and the caput femoris dislocated. If properly conducted up to this point, not a drop of blood has escaped, excepting that which was in the limb below the constrictor when this was applied. The remaining vessels which require the ligature should now be sought for and secured. These are: the saphena vein, which on account of its proximity to the main trunk should be tied; the sciatic artery, which will be found near the stump of the sciatic nerve; the obturator, which is situated between the stump of the adductor brevis and magnus, usually about half-way from the centre of the shaft of the femur to the inner side of the thigh, the vessel being on a level with the anterior surface of the femur; the descending branches of the external circumflex, two or three in number, usually found about an inch and a half outward and downward from the main femoral vessels beneath the rectus and in the substance of the crureus and vastus externus. The descending branches of the internal circumflex are insignificant, and are usually found on the level of the femoral vessels in the substance of the adductor longus and between it and the adductor brevis and pectineus.

In tying the larger femoral vessels Wyeth makes it a rule to dissect both the superficial and deep femoral stumps back from one-half to three-fourths of an inch, so that he can apply the ligature behind any of their branches which may have been divided close to their points of origin, and does not hesitate to include the large veins in the same ligature in order to save time. With the vessels mentioned quickly secured, there is really no necessity for even temporarily loosening the tourniquet. If the operator is not sure that he has found and securely placed the ligatures upon these larger vessels, it is a simple matter to slowly loosen the grasp of the

tourniquet until the pulsation of the larger trunks is perceptible. No attention should be paid to the general oozing from the large muscular surfaces which have been divided. If every oozing point were ligatured, from half an hour to an hour would be consumed in securing a dry wound in the majority of cases. In order to hasten the operation and stop the oozing, introduce a snug packing of sterile iodoform-gauze ribbon into the cavity of the acetabulum and the space between the muscles from which the bone has been removed, leaving one end of the ribbon to pass between the flaps for the purpose of its removal. With a long, half-curved Hagedorn-Fowler needle armed with good-sized catgut, deep sutures are passed through the stumps of the divided muscles in such a way that large masses of muscles are brought tightly together when these sutures are tied, taking two to four inches in the grasp of each suture. The needle is not passed in the proximity of the large vessels or the sciatic nerve, but in all other directions the muscles are rapidly quilted together. This effectively and rapidly controls all oozing. Nothing remains but to close the flap with silkworm-gut sutures, and cleanse it off thoroughly dry, seal it with collodion in its entire extent to prevent any infection from the genital or anal region, apply a large, loose dressing of iodoform and then sterile gauze, and a light bandage over the first light dressing. The pins are then removed and the remainder of the dressing completed. Preliminary pressure of the light dressing prevents oozing, and the wound remains dry.

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#### MIDWIFERY AND DISEASES OF WOMEN.

E. SAVA records the case of a multiparous woman pregnant at the eighth month, who was brought into hospital suffering from a round penetrating wound with irregular ecchymosed edges in the epigastric region. She had fallen on a sharp piece of wood which had caused the wound. The patient was conscious, her pulse was small and frequent, and the temperature subnormal. There were no signs that labor had set in, and the uterus was unwounded; but as there was evidently internal hemorrhage, laparotomy was performed. The source of the bleeding was found in a laceration of the epiploon; this was sutured, and the hemorrhage ceased. Some saline solution was left in the peritoneal cavity, as is done in cases of grave anemia, and the abdomen was closed in the usual

way. The woman left the hospital twenty days later, and soon afterwards she was delivered of a living, well-developed child. She was seen by the author a month after the confinement, and she remained well. The case is interesting because the pregnancy, notwithstanding the triple traumatism (the fall, the puncture of the abdomen, and the laparotomy), went on uninterruptedly to the full term.—*British Medical Journal*.

#### THE TREATMENT OF CHRONIC BRONCHITIS.

In the *Revue de Thérapeutique Médico-Chirurgicale* of January 15, 1897, Dr. LYON contributes an article upon this frequent and often troublesome affection. He first points out that chronic bronchitis is nearly always a secondary condition following acute bronchitis or dependent upon organic disease such as emphysema, Bright's disease, or various cardiac affections. Acute bronchitis he thinks is very apt to become chronic in those persons who have a neuroarthritic tendency—or in other words those who possess a tendency to gout and allied affections. Sometimes, too, chronic bronchitis exists simultaneously with chronic disease of the nose and pharynx, and the relief of these lesions cures the bronchitis. Quoting Laennec as to the various forms of chronic bronchitis he divides them into the dry and moist form, the latter form in turn being divided into what is known as the mucous and purulent. Sometimes this purulent secretion becomes putrid, when it is known as "putrid bronchitis;" and finally there is, rarely, a membranous condition known as pseudo-membranous bronchitis. In association with these complications chronic tracheitis is sometimes present.

The treatment of bronchitis divides itself into several forms: first, the modification of the function of the bronchial mucous membrane so as to alter the secretion and also with the object of combating congestion; second, we must facilitate expectoration; third, we must calm the cough; fourth, we should improve the general health of the patient by hygienic and other measures. The agents which modify the bronchial secretion are numerous. The chief ones are those which after absorption are eliminated by the respiratory passages, and consist in greater part of the balsams, gum resins of plants containing essential oils, sulphur and its compounds, and the iodides. Of the first class of substances we may cite in particular tar, bal-

sam of tolu, benzoin, turpentine and terpine, eucalyptol and creosote. The inconvenience associated with all these remedies is that they exercise an irritant influence upon the stomach. Copaiba, which is rarely employed because it has not a good reputation, nevertheless is very efficacious. Its essence is eliminated by the respiratory mucous membrane, and the resin is slowly eliminated by the kidney. Dujardin-Beaumetz recommended its association with tar. He prescribed four to eight capsules containing seven grains of equal parts of copaiba and tar.

Turpentine is usually employed in capsules holding three to four minims, six to eight of which are taken daily, but terpine has quite largely taken its place. The great difficulty with the administration of creosote in cases of bronchitis is the irritant influence which it exercises upon the stomach. There is no doubt, however, that creosote aids in getting rid of the secretion and acts deleteriously upon the tubercle bacillus. The balsams which have been mentioned are usually employed by inhalation, being added to hot water, and the steam arising therefrom inhaled.

The following prescriptions may be employed internally in using the medicines already suggested:

℞ Tar, 75 grains;  
Balsam of tolu, 75 grains;  
Benzoate of sodium, 1 drachm.

Make into 40 pills and give four a day.

℞ Terpinol, 2 grains;  
Benzoate of sodium, 2 grains;  
Sugar, sufficient quantity.

Make into one pill and give six to twelve a day.

℞ Terpine, 75 grains;  
Glycerin and alcohol, 2½ ounces;  
Simple syrup, 2½ ounces.

A dessertspoonful three or four times a day.

℞ Turpentine, 30 minims;  
Tar, 30 minims;  
Balsam of tolu, 1½ drachms;  
Benzoate of sodium, a sufficient quantity.

Make into 80 pills and give six or eight a day.

℞ Terpine, 75 grains;  
Brandy, 2½ ounces;  
Syrup of lettuce,  
Syrup of tolu, of each 3¼ ounces.

One to two dessertspoonfuls twice or thrice a day.

Eucalyptol may be prescribed in capsules containing one grain; these may be given three or four times a day.

Lyon thinks that eucalyptol is preferable to turpentine, as it is not so apt to produce disturbances of the stomach and kidneys.



Benzoin may be given in the dose of half a drachm of the tincture several times a day with very good results; or the following may be used:

- ℞ Tincture of benzoin, 15 to 30 minims;  
Tincture of canella, 2½ drachms;  
Wine, 4 ounces.

In other cases it is wise to prescribe the following:

- ℞ Terpene and pure benzoic acid, of each 2 grains;  
Codeine, ¼ grain.

Make into a pill and give four to six of these a day.

Or creosote may be given in pill form as follows:

- ℞ Creosote, 2 drachms;  
Almond soap, a sufficient quantity.

Make into 80 pills and give eight or ten a day.

The pilular form of administration of this drug is very satisfactory, in direct contrast with the use of creosoted wines which have been employed in the treatment of pulmonary tuberculosis, with the result of very frequently provoking digestive disturbances. Because of the useful influence exercised by sulphur over the mucous membranes the various natural sulphur waters and also those which are made artificially may be employed. None of the natural waters are as good after transportation as they are at the spring. As sulphur tends to congest the bronchial mucous membrane it is only to be employed during the period of the decline of the bronchitis when the secretion resists the action of the balsams. The iodides are particularly efficacious in those cases in which the bronchitis is associated with emphysema, particularly if arterio-sclerosis is present. They liquefy secretions and aid in their expectoration from the lung. They have, however, the inconvenience attendant upon the administration of any iodide, namely, the loss of appetite and the other evidences of iodide intolerance. They must therefore be given with prudence. It is well to interrupt their administration every three or four days for a short period. The doses should vary from three to fifteen grains a day. It is advantageously associated with codeine or with belladonna. The following prescription may be used:

- ℞ Distilled water, 12 ounces;  
Iodide of potassium, 3 to 8 drachms;  
Fluid extract hyoscyamus,  
Fluid extract belladonna, of each 1 fluidounce.

Dessertspoonful of this is to be taken at night before retiring, and again if dyspnea in nocturnal paroxysms appear.

[As these extracts are not entirely soluble in a watery menstruum this mixture will have to be shaken before it is used.—ED.]

Should the element of pulmonary congestion be marked, ipecac and ergotin in minute doses are often useful, and the ipecac may be combined with terpene and ergotin. As a rule, however, the ergotin is best administered in suppositories as follows:

- ℞ Ergotin, 5 grains;  
Powdered opium, 1 to 2 grains;  
Extract of hyoscyamus, 1-6 grain;  
Cacao butter, a sufficient quantity.

This is to be made into a suppository and introduced each night into the rectum. If we desire to use ipecac the following may be given:

- ℞ Syrup of ipecac, ¼ ounce;  
Syrup of acacia,  
Syrup of tolu, of each 4 ounces.

Two to four teaspoonfuls a day may be given in hot water.

So far as expectorant medication is concerned, we find that if the lung is exceedingly full of mucus it may be necessary to produce emesis by prescribing ipecac. Or if the patient is a strong, vigorous man we may prescribe tartar emetic in minute doses. In other cases the following prescription is useful:

- ℞ Chloride of ammonium, 45 grains;  
Extract of hyoscyamus, 15 grains;  
Powdered ipecac and powdered alum, of each 7 grains.

Make into fifty pills and give four a day.

Or the following powders may be given:

- ℞ Dover's powder,  
Powdered squill, of each 10 to 20 grains;  
Powdered eucalyptus, 1 drachm.

Make into thirty cachets and give three a day.

For the arrest of cough the same remedies are useful as may be employed in acute bronchitis, such as opium, belladonna, aconite, and cherry-laurel water. Where the secretion is thick the bromides are often very useful.

Hygienic treatment consists in the use of frictions and hydrotherapy, in sending the patient to a health resort, in the use of iodide of iron, cod-liver oil, bitters, and cinchona, and in the employment of arsenic and of cardiac stimulants such as digitalis and caffeine. Where there is a bronchorrhea full doses of ergot or hyoscyamus and of arsenic are of value, and for tracheitis inhalations of menthol vapor derived from a menthol in-

haler, or made by putting a few crystals of menthol in a hot spoon, are exceedingly useful.

For putrid bronchitis with fetid expectoration we should administer essence of turpentine, eucalyptus, carbolic acid, and creosote. Inhalations of oxygen are also valuable in such cases, and it is said that subcutaneous injections of eucalyptol made as follows are valuable:

℞ Eucalyptol, 5 drachms;  
Liquid vaselin, 2 grains.  
Inject one to two teaspoonfuls.

Lyon also quotes Da Costa as having recommended oil of sandalwood in doses of five drops four times a day.

In pseudo-membranous bronchitis we should treat the disease as we would diphtheria, by diphtheria antitoxin or antistreptococcic serum. Iodide of potassium may also be useful. In the chronic bronchitis of children, after being sure that no rickets, adenoid vegetations or hypertrophic rhinitis are the cause of the trouble, we should administer cod-liver oil, arsenic, and bitter tonics.

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## Reviews.

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**A PRACTICAL TREATISE UPON DISEASES OF THE SKIN.** For Students and Practitioners. Fourth Revised Edition. By James Nevins Hyde, A.M., M.D., and Frank H. Montgomery, M.D.  
Philadelphia: Lea Brothers & Company, 1897.

Any book dealing with general medicine, and therefore of interest to the all around practitioner, which runs through an edition in the period of three years may well be considered successful, and when we consider that this volume has reached its fourth edition in that period of time, although it deals solely with skin diseases, it will be understood at once that it must possess sterling merits which will recommend it not only to the dermatological specialist, but to the general practitioner as well. From the standpoint of the latter, we have looked over its pages for the purpose of discovering what the points were which have proved so attractive to many practitioners. One of these is the large number of illustrations which render the diagnostic points which are mentioned in the text clear to those who have not had the advantage of practical courses in dermatology; and second, there are many instances in which the recommendations as to treatment are fortified by the practical illustration of their method of application.

**ARCHIVES OF CLINICAL SKIAGRAPHY.** Edited by Sidney Roland, B.A.

London: The Rebman Publishing Company, 1896.  
Philadelphia: W. B. Saunders, 1897.

This, the last number of Volume I of the "Archives of Skiagraphy," contains a series of plates illustrating the anatomy of a double monster, the condition of the feet in a patient who had six toes, a fracture of the olecranon treated by suturing with wire, and similar subjects.

Such a journal must possess considerable interest to two classes of scientific investigators: first, those who are interested in the Roentgen rays from an electrical point of view; and second, those who are wont to employ these rays in the differentiation and diagnosis of disease.

**INEBRIETY: ITS SOURCE, PREVENTION, AND CURE.** By Charles Follen Palmer.

Fleming H. Revell Company, New York, Chicago, and Toronto, 1897.

This is a small essay of just one hundred pages, closing with a curious diagram which seeks to illustrate the author's views in regard to the important subject which he discusses.

The first chapter is upon "Nervous Mental Organization," the second upon "The Inebriate's First Step Toward a Cure," and after two intervening chapters there is a final one upon "The Moral Characteristics and Various Types of the Inebriate."

**ORGAN DISEASES IN WOMEN.** Notably Enlargements and Displacements of the Uterus and Sterility Considered as Curable by Medicines. By J. C. Burnett.  
Philadelphia: Boercke & Tafel, 1897.

This is a little book of the style of a child's primer, devoted to the consideration of conditions of sufficient gravity to require a scientific treatise to consider them. As long as individuals are willing to resort to futile methods of treatment such as are recommended by Dr. Burnett, just so long will practitioners of the class he represents continue to exist. It is simply a case of supply equaling the demand.

We regret that this book should have been published. It is written by one professing to practice Homeopathy, who in no way represents the advanced and enlightened stand which some of those who profess to practice Homeopathy are now taking in regard to the methods which should be employed in the practical treatment of diseases, medicinal or operative. An ignorant midwife could have produced a more valuable contribution to medical literature.

**THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX.**  
A Work of Reference for Medical Practitioners. Fifteenth year.

Bristol, England: John Wright & Company. New York: E. B. Treat. 1897.

The Medical Annual for 1897 contains 629 octavo pages which deal not only with therapeutic advances but also with the general topics of surgery, medicine, the various specialties in medical practice, and a description of new and valuable apparatus. It is, like previous editions of this well known reference book, copiously illustrated by pictures which as a rule are quite up to if not beyond the quality usually found in the best medical text-books of the day. In the present volume colored Plate XIX showing various pathological conditions of the larynx and vocal chords, and Plate XXIII showing psoriasis, seem to us worthy of note. It is hardly necessary to add that the publishers have called to their aid the use of the skiagraph for the elucidation of the text where it was necessary. The English edition closes with a large number of pages devoted to the exhibition of new surgical and other apparatus, the names of various publishers, and a large number of advertisements of articles which will prove useful to the general practitioner. It is evident that a constant effort is being made by the publishers to maintain the reputation already acquired by this useful publication.

**THE YEAR-BOOK OF TREATMENT FOR 1897.** Prepared by many Collaborators.

Philadelphia: Lea Brothers & Company, 1897.

To those who are accustomed to looking forward to the yearly publication of this useful summary of therapeutic literature, we are confident that the present issue will give much satisfaction. It is now, as it has always been, a well prepared digest of therapeutic literature for the year, made by men exceedingly well fitted by experience for the responsible positions of abstractors. Each author knows full well exactly what is valuable and what must be cast aside as being useless to the general practitioner.

The paper, printing and binding are beyond reproach, and the cost of the volume is so moderate as to place it within reach of every physician.

**DISEASES OF THE STOMACH.** By Dr. C. A. Ewald. Translated and edited, with numerous additions, from the Third German Edition by Morris Manges, A.M., M.D. Second Revised Edition.

New York: D. Appleton & Company, 1897.

This classical book upon Diseases of the Stomach has not only proved itself very popu-

lar in Germany, but was translated in this country some years ago by Dr. Manges, and in England has been published in the list of the New Sydenham Society. The first American edition appeared in 1892 and speedily made for itself a place in American medical literature, first, because no similar book was to be had in the English language; and second, by reason of the fact that it was of itself a most valuable contribution to medical literature. Although the present edition is taken from the third German edition, which appeared in 1893, Dr. Manges has by careful editorial work included in the text, or in footnotes, everything in English and American literature which is of any value concerning the study of gastric disorders, so that the book is to-day not only a mirror of German study and practice, but also reflects the views of the best specialists upon this subject in this country.

We do not know of any other volume dealing with this or any other branch of medicine in which the references seem to be so well chosen and so judiciously quoted.

So much work has been done during the last four or five years in the study of gastric disorders in this country that we are practically the equals of our German brethren in the study of these lesions, and, perhaps because Americans are supposed to suffer from gastric disorders, have far surpassed our English cousins in this line of work.

Those who have the earlier edition of this book will, we are sure, hasten to purchase the new one, and those who have not the earlier edition certainly ought to enlighten themselves by having this one in their libraries.

**CHIRURGIE DES VOIES URINAIRES.** Etudes Cliniques par le Dr. E. Louveau. 2me Volume.  
Bordeaux: Feret & Fils, 1897.

This work, like the one issued three years ago by the same author, is simply a close clinical study of disease as it occurred in the author's hospital and private practice. It appears in the form of case reports with practical comments. Many of these cases have already been published in current journals, but since they are properly classed under one branch of surgery the author believes it serviceable to collect them in a single volume. There is one case of paroxysmal hemoglobinuria studied with unusual care.

The first paper in the book is devoted to painful micturition of uterine origin, with reports of cases. Among interesting articles found in this volume may be mentioned a

well-illustrated paper upon Glandular Hypospadia; the description of an efficient hypogastric urinal; a discussion of the relation of urethral spasm to lithotrity; A Case of Vesical Papilloma; reports of Urethral Tumors; and Cancer of the Kidney.

This work should be valuable to those who are especially interested in genito-urinary surgery.

**LECTURES ON APPENDICITIS AND NOTES ON OTHER SUBJECTS.** By Robert T. Morris, A.M., M.D. Second Edition, revised and enlarged. With illustrations by Henry MacDonald, M.D.  
New York: G. P. Putnam's Sons, 1897.

This collection of lectures, the author states, includes the substance of his teaching to the students at the Post-Graduate Medical School of New York, and also a series of notes on other subjects which have particularly interested his class.

The first chapter is devoted to preparation of the surgeon and patient and covers the general rules of surgical antisepsis. The second chapter is devoted to the anatomy of the appendix. Then follows a discussion on appendicitis, with surgical treatment and a table of cases.

The author's views on this subject are expressed in an unusually clear, original, and forceful manner. Following this portion of the book on appendicitis, there are a number of useful papers, exhibiting the author's ingenuity and success in dealing with unusual surgical conditions, and his keen observation of pathological processes.

The book is admirably printed and beautifully illustrated, and is worthy of the reputation of its distinguished author.

**A PICTORIAL ATLAS OF SKIN DISEASES AND SYPHILITIC AFFECTIONS.** In Photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris. With Explanatory Woodcuts and Text. Edited by J. J. Pringle, M.B., F.R.C.P.

London: The Rebman Publishing Co., Ltd. Philadelphia: W. B. Saunders. 1897.

The photo-lithochromes of this admirable work, published by Saunders (Part VIII), and elucidated by Besnier, Fournier, Tenneson, Hallopeau, Du Castel, Feulard, Jacquet, and Pringle, are: Epithelioma Arising from a Lupus Scar; Erythema Iris. Erythema in Concentric Circles. Hydroic Erythema. Hydroa Vesiculæ of Bazin; Lichen Planus of Wilson, of the Papulo-Erythematous Variety; Biskra Button.

In addition there are several woodcuts. We have repeatedly endeavored to express how completely this work deserves the fullest praise.

## Correspondence.

### LONDON LETTER.

By RAYMOND CRAWFURD, M.A., M.D.

We have now in our hands the Report of the Departmental Committee appointed by Lord George Hamilton in November last to inquire into the health of the British Army in India: its findings are simply appalling.

The main features of the Report may be summarized as follows: In 1889 a Cantonment Act was introduced into the Indian Army Service, which established a Lock Hospital system in dealing with venereal diseases. While the Cantonment Act was in force there was a marked decline in the amount of venereal disease, but since its abolition in 1893 there has again been a rapid increase, and this coincidentally with a steady decrease in disease assignable to other causes. In 1895 the figures had reached their maximum, and showed an average of victims amounting to 522.3 men per 1000 strength. In the words of the Committee: "It is responsible for more than one-third of the total sickness, and the constant and complete disablement of 3200 men out of a force of 71,000, and a vast amount of partial disablement and invaliding under the head of many other complaints."

Out of the 5882 men detailed for field service with the Chitral Relief Force, close upon 12.5 per cent were found unfit for active service; and at this ratio 8800 men out of a total force of 71,000 would have to be put down as useless. The visit of the Committee to the Military Hospital at Netley, where soldiers invalided from India come under medical treatment, only served to fill in the details of this terrible picture. "In many cases," the Report runs, "recovery is hopeless, and what to do with them has become a question of serious difficulty: their friends refuse to receive them. Death alone can solve the difficulty and release them from their sufferings." Nor is this the end of the evil, for as these men return from India they are the means of importing a constant supply of venereal disease for dissemination at home. Surely it is strange that while we take no steps to prevent the inroad into our hearths and homes of a foul pestilence that by slow ravages eats up body and soul alike, we appoint commissions and hold conferences for keeping at bay a

disease which probably can never get foothold on our shores under existing sanitary conditions, and is at any rate merciful in the rapidity of its devastation. The Report further draws a comparison with the statistics of venereal disease in other European armies, where special regulations are in force. Thus the ratio per 1000 strength of men incapacitated is in the German Army 27.3; in the Russian, 43; in the French, 43.8; while in our own army it is 203.7 at home, and 438 in India. How to deal with this appalling catalogue of disease is the question with which we are now brought face to face. These figures do not serve to show any increase in sexual immorality, for on all hands it is agreed that with the better care bestowed on the British soldier in the last few years the actual standard of morality has been considerably raised.

stand a dose of microbes that would under normal conditions be fatal. About twenty-four hours is necessary for the development of this condition, and its duration is about four days. This heightened resisting power is quite distinct from specific immunity, for injections of indifferent substances produce the same conditions in a lower degree; then an injection of normal saline solution markedly increases the resistance of the animal to microbial agencies; also the immunity is of a more or less transient character, while specific immunity tends to be more abiding in its influence. The following table from Mr. Durham's experiments deserves careful study; the infecting agent was typhoid bacilli, the animals rabbits, and the preliminary doses of one cubic centimeter were given twenty-four hours before infection:

No.	Previous Treatment.	Infected with	Result.
1 .....	None.	4 loops.	Death in under 17 hours.
2 .....	None.	3 loops.	Death in 9 days 22 hours.
3 .....	1 per cent. NaCl.	4 loops.	Recovered after illness.
4 .....	Typhoid serum (horse).	6 loops.	Recovered: hardly ill.
5 .....	Typhoid serum (horse).	9 loops.	Recovered: hardly ill.

We have rather to deal with a vastly increased liability to disease; and while we are quite in sympathy with those who would strike at the root of the evil by educating the moral discipline of our soldiery, we are equally aware of the tardy nature of such a method of redress, and press for immediate measures to grapple with the evil before it gets out of hand. Our own wish would be to renew the Cantonment Act and enforce it rigorously, or if we must yield to fanatic morality, let us at any rate respect the dictates of reason and treat it as we treat other diseases that endanger the health of the community.

One of the most interesting features of this month has been a communication by Mr. Herbert Durham to the Royal Medico-Chirurgical Society of some experiments on peritoneal infections, which should possess an important clinical bearing on transperitoneal operations. These experiments were in continuance of similar work by the German bacteriologist Tsaëff in 1894 in connection with the cholera vibrio. Tsaëff showed that several different substances, when injected into the peritoneal cavity of guinea-pigs, were capable of affording protection to the animals, which were inoculated with cholera vibriones upon the following day. These preliminary injections raise "the power of resistance of the part," so that it can with-

This table serves also to emphasize the essential distinction between heightened physiological resistance and specific immunity. Similar experiments with the cholera vibrio and other bacteria gave similar results. This condition of increased bactericidal power of the peritoneal fluid is associated with the appearance in it of a number of active phagocytes of two kinds: (1) finely granular oxyphil or polynuclear leucocytes or microcytes; (2) macrophages. As Mr. Durham remarks, the point of practical therapeutic importance is as to whether such preliminary injections into the human subject prior to operative interference with the peritoneum would similarly heighten the resisting power of the subject. Owing to the limited duration of the protection the method could never replace existing precautions against sepsis. Moreover a difficulty suggests itself in connection with the choice of injection, for the frequency of occurrence of any individual micro-organism is not so constant and invariable as to suggest the injection most likely on *a priori* grounds to have the greatest effect. The point to be aimed at is "to produce an ample leucocytosis in the peritoneal fluid, and also if possible to give a super-added specific protection by aseptic means." Statistics do however point to a relative frequency of streptococci in infective peritonitis,

and it might be desirable to employ anti-streptococcic serum. In England much too great stress has been laid upon the importance of bacillus *coli communis* as the prime factor of infection in cases of intestinal origin. This is partly due to its vigorous growth obscuring the feeble growth of other micro-organisms, but also to the fact that some observers have used carbolized culture media, on which few microbes but bacillus *coli* are capable of growing; in fact the bacillus *coli*, though undoubtedly pathogenic in man, is probably one of the least virulent organisms present in septic peritonitis. Examination of the peritoneal fluid alone is quite insufficient in such cases, as this may be absolutely sterile, while the omentum and other peritoneal membranes harbor innumerable microbes; and the search should be carried even further afield than this to the lymph-channels and glands connected with the peritoneum, and to the blood. The most important lymph-channels are those which pass up through the anterior mediastinum, and these should always be carefully examined in every case of peritonitis, as this is the path by which bacteria pass from the peritoneal cavity into the blood. In most cases of acute septic peritonitis there is a remarkable absence of signs in the peritoneal cavity, and unless a wider examination be made death from sepsis is likely to be attributed to shock. As a general rule, the least acute processes are those that manifest the most obvious signs in the peritoneum. If then we use antistreptococcic serum rather than one of the less efficacious indifferent injections, of which nucleinic acid seems to be the most active, we secure not only heightened resistance, but specific immunity as well in the great majority of cases. The fact that the omentum is so prone to harbor micro-organisms has an important bearing on the method of flushing the peritoneal cavity in cases of suppurative peritonitis. To quote Mr. Durham's own words: "In the laboratory and in the post-mortem room it is found that the majority of organisms and exudation cells are found about the omentum, the surfaces of the liver, spleen, and diaphragm—in fact the upper part of the peritoneum. It seems clear therefore that in cleansing the abdominal cavity especial attention should be paid to thoroughly mopping out and washing these parts—the omentum, and between the liver and diaphragm," not however to the exclusion of other parts. Intestinal peristalsis by the vermicular movements seems to be the

mechanism which determines deposit on the omentum; here they are brought into intimate contact with the leucocytes that transude chiefly from the mesenteric vessels. From this Mr. Durham draws an argument in favor of laxatives in septic peritonitis, for by such means peristalsis is re-established, and the increased circulation in the mesenteric vessels favors increased local leucocytosis. We have dealt very fully with Mr. Durham's paper, as the suggestions it contains are so well worthy of close attention and further investigation.

Mr. Clement Lucas's indictment of anesthetic apparatus as a purveyor of disease has at any rate been fruitful in stimulating criticism. We ourselves are rather of opinion that Mr. Lucas has grappled with a phantom in maintaining that the pulmonary sequelæ of operation are to be attributed to infection and not to the anesthetic. It has been generally held that the presence of the pneumococcus in the lung is not in itself sufficient to cause pneumonia, but that some factor lowering the physiological resisting power of the part is necessary for the effectual activity of the micro-organism. The pneumococcus has been shown to be present in the sputum and in the discharges from the respiratory passages of a very large number of persons in health. In operations this factor is almost beyond reasonable doubt the anesthetic. So it is that pneumonia is much more frequent after inhaling ether and chloroform than nitrous oxide, because the last named is much less irritating to the lung. In all probability the apparatus has no calculable influence in its production, for nitrous oxide, which necessitates the most elaborate paraphernalia, is seldom or never followed by pneumonia, while the same cannot be said of chloroform, which is usually administered on a receiver saturated with the drug; and in this connection it should be remembered that chloroform is a powerful antiseptic, while nitrous oxide is a relatively powerless bactericide. Still, while even an infinitesimal opening for infection exists, it is of something more than mere academic importance to forestall this possibility. With this end in view Dr. Silk of London has introduced celluloid and metal inhalers, which can be submitted to all the same processes of sterilization as are applied to other instruments used at operations; or, as suggested by Mr. Lucas, toughened glass might be employed for the same purpose, and an asbestos web that could be raised to a white heat substituted for the flannel or sponge receiver.

## PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

At a dinner given some days ago by the Society of Hygiene of France, one of those called upon to speak was Dr. C. E. Sajous, of Philadelphia, who referred to a remark made not long ago during a discussion in the Chamber of Deputies on the practice of medicine in France by foreigners. One of the deputies, Mr. Georges Berry, had said that it was a well known fact that in Philadelphia any one could purchase a diploma. Dr. Sajous recalled the case which had been the ground of such erroneous statements, namely, that a certain Buchanan, having by fraud obtained possession of a charter, had sold so-called diplomas to foreigners in some instances. This man, prosecuted by the Philadelphia County Medical Society, had been arrested and sentenced to a term of years in prison, served his term, and had already been dead some years. Though the prosecution occurred some seventeen years ago, Dr. Sajous expressed his astonishment to find that it had not as yet reached foreign ears.

Dr. Sajous also spoke of the numerous institutions of learning to be found in Philadelphia and the United States in general, and expressed his belief that taken all in all they could favorably compare with the majority of European institutions. It was greatly to be regretted, he thought, that the United States should be so unjustly criticized, and he sincerely hoped that the statement made by him would be sufficient to modify the false impression under which foreign physicians were laboring.

The physicians present, many of whom are very prominent, expressed their hearty approval of Dr. Sajous' statements on behalf of his country's institutions, and stated that all present would do all in their power to counteract the false ideas existing on the subject among the profession of the Continent.

In "*Les Misérables*," by Victor Hugo, the author speaks of Louis Philippe, who reigned in France from 1830 to 1848, as "the first King who ever shed blood to save life." These words refer to an incident in Louis Philippe's life of which the Duke of Aumale, his son, recently spoke. The King in 1833 went out with his entire family to meet his son-in-law, the King of Belgium, who was coming to Paris. An old courier who accompanied them was thrown from his horse and injured. The King called for some one to bleed the man (we must remember the medical theories

of the early part of this century), and as no one offered to do so, himself opened a lancet which he had with him, tore up some handkerchiefs, and bled him. This lancet, according to the Duke of Aumale, his father had retained from the period when he had acted as Dresser in the Hôtel-Dieu of Paris.

The Duke of Aumale stated that he could remember seeing a painting made at the King's order in which the latter was shown in the white apron worn by the dressers, and accompanying the head of a medical or surgical service in the visit to one of the wards of the Hôtel-Dieu of Paris.

On Saturday, March 24, there died at Havre a physician—Dr. de Bossy—who for many years had been the oldest medical man in France, and perhaps of the entire world. He had just finished his 104th year. He was born in Paris in 1793, was taken to England, where his youth was passed and where he pursued his medical studies. After obtaining his diploma he sailed for India, where he practiced ten years, and later on in the Mauritius. In 1843 he returned to France, passed his Doctor's Thesis at the Faculty of Medicine of Montpellier, and settled in Havre, where he practiced as long as he lived, for until the very end Dr. de Bossy continued to receive patients and to make visits. A celebration was given four years ago by his colleagues in honor of his 100th year. Dr. de Bossy's father lived to an even greater age—108 years.

Recently Dr. Dieulafoy has described in various communications made to the Academy of Medicine and other societies, an affection to which he has given the name of Intestinal Lithiasis. This affection, which may be found in patients of all ages, consists in the expulsion by the anus of sand or even of concretions of larger size. Almost always it is associated with muco-membranous colitis. The sand is in some cases voided without pain by the patient, who may even not know of the existence of the phenomenon, until by chance he discovers it. In other cases severe attacks occur, during which colic, nausea, and even vomiting, similar to the symptoms of hepatic colic, are present.

It is probable that this intestinal lithiasis is allied to the gouty diathesis.

In one case analysis of the sand gave the following results: Fatty substance, 28.50 per cent.; calcium phosphate, ammonio-magnesium phosphate, and calcium carbonate, 16 per cent.; chloride, traces; animal substance and organic matter, 55.50 per cent.

As the proportions vary, the sand and gravel found in various cases may differ in color, friability, and hardness. Dr. Dieulafoy calls especial attention to the fact that as yet he has seen no case of appendicitis connected with this affection.

The treatment recommended is the same as that in biliary lithiasis.

In France baldness, and especially premature baldness, has been considered one of the symptoms of the arthritic diathesis. In a recent series of researches Dr. R. Sabouraud proves, to use his own words, that it is "one of the most extraordinary and purely microbial affections to be met with." Dr. Sabouraud, who for several years has been connected with the St. Louis Hospital, the great dermatological hospital of Paris, and who is at the head of the Laboratory connected with the service of Dr. Fournier, is the same whose researches on the parasite of trichophytosis are now universally known.

Ordinary baldness is due to a specific microbe which invades the hair follicles. This microbe he has succeeded in cultivating. Its action on the hair follicle may be summed up as follows: It first gives rise to hypersecretion of sebum followed by hypertrophy of the sebaceous glands annexed to the hair; this in turn causes progressive papillary atrophy, and finally the death of the hair. In other regions where excessive seborrhea exists, the skin is hairless, and treatment of seborrhea of such regions will tend to produce a growth of hair in places where previously none existed.

#### *A CASE OF ACETANILID POISONING.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The following case of poisoning by acetanilid seems to me of interest. A married woman, aged twenty-one years, just two weeks after her confinement suffered from quite severe frontal headache and was given by a physician half an ounce of acetanilid in bulk in an envelope, with directions to take a small quantity of it on the end of a teaspoon every two hours. The patient took two doses as directed, and a few hours afterward, the headache still persisting, she concluded that a very large dose would be more efficacious, and swallowed a teaspoonful of the drug. Half an hour afterwards she began to grow weak and to feel dizzy, and an hour later she fainted and passed urine involuntarily. Her husband then consulted a book on Homeopathic Home Remedies, but failed to give her any relief.

She became cyanotic, and the husband becoming greatly alarmed sought for the nearest physician. I reached the case at 7 P.M. and found her in a semi-conscious condition. The pulse was slow and extremely feeble, the respirations slow and shallow, the forehead bathed in sweat, the face livid and perfectly expressionless. The tongue, lips and fingernails were intensely cyanotic and almost black; the head, hands and eyelids were cold, but her feet were quite warm; temperature was normal; there was tingling of the skin over the entire body and some slight mental confusion. Some headache still persisted. There was suppression of urine until noon the next day, and when passed it was of a dark brown color and very abundant. I also noticed a loud and continuous borborygmus. The milk secreted by the breast was very much thinner than it had been before the poisoning. The cyanosis lasted for several days.

The treatment was essentially that advised by Professor Hare. The patient was forced to maintain a recumbent position, the head was kept low, and a hypodermic injection of aromatic spirit of ammonia followed by sulphate of strychnine and sulphate of atropine were given. Hot bottles were placed about the body, and she received  $\frac{1}{4}$  of a grain of strychnine every three hours by the mouth, alternating with whiskey and aromatic spirit of ammonia. Owing to the condition of the milk it was not considered wise for the patient to continue nursing her child, as the milk failed to return to its normal condition after recovery, and the patient was much exhausted.

Yours truly,

G. BARINGER SLIFER, M.D.

PHILADELPHIA.

#### *TAKA-DIASTASE.*

To the Editor of the THERAPEUTIC GAZETTE.

In the course of recent experiments I was accidentally led to find that Taka-Diastase is a very active peptonizing agent, being especially vigorous when brought in contact with the caseine of milk.

Having neither the time nor the facilities to pursue the matter further, I bring it to your attention, hoping that a careful investigation will be instituted.

So far as I know this is the first time that such a property has ever been attributed to a diastatic ferment.

Very truly yours,

J. B. RUSSELL.

NEW YORK.



# — THE — Therapeutic Gazette.

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## Original Communications.

### SOME OF THE UNTOWARD EFFECTS PRODUCED BY THE ADMINISTRATION OF THE BROMINE COMPOUNDS.\*

BY H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

It is not my intention to discuss in this paper the well known untoward effects of the bromides as they are manifested by eruptions on the skin, mental torpor, and the final de-

velopment of a cachexia and general as well as nervous feebleness. The conditions on which I desire to dwell are more unusual and not so well known to the profession, although they are more common than would be supposed.

In the study of remedies, both old and new, the tendency of the physician is rather to record his successes than his failures, and to report the instances in which the drug has done good rather than those in which it has failed or done harm. It is only after many years of experience roll by that the profession gains a complete view of the reverse of the therapeutic shield.

The untoward or unexpected effects of

\* A paper read before the Association of American Physicians, May, 1897.

drugs are, however, never to be forgotten, and the possibility of a remedy causing an unusual symptom is to be ever borne in mind.

At a meeting of the Association of American Physicians held in Washington in May, 1896, Weir Mitchell read a paper detailing a number of instances in which the use of the bromides had speedily produced a number of untoward effects over and above the skin eruption, disordered digestion and mental slowness usually met with after full doses of this drug are used. Thus the symptoms manifested consisted in great irritability of temper, moroseness, and homicidal or suicidal tendencies. In one case, that of Jacksonian epilepsy in a child, imbecility developed from the use of bromides; another child became a sufferer from amnesic aphasia; and in an adult female suicidal tendencies and melancholia appeared when the drug was used and disappeared when it was stopped. Voisin and Stark reported cases many years ago, and Harriet Alexander as recently as July, 1896, has contributed a valuable paper on this topic, in which she reviews the literature on this subject in this country quite thoroughly. Seguin reported the case of a twelve-year-old boy who had *petit mal* in the form of chills, and when these were stopped by the bromides he became unmanageable and boisterous. Hughes of St. Louis has reported another case of *petit mal* which developed kleptomania when the bromides were given, and Rockwell has recorded an instance in which an epileptic female on taking the bromides became irritable and suspicious. Dr. Alexander in the paper quoted cites several instances from an earlier contribution of hers on this subject. An epileptic nymphomaniac always became irritable and suspicious on the use of the bromides. In another woman, with a family history of epilepsy and imperative homicidal conceptions of long continued form, erotico-religious, auditory and visual hallucinations followed the use of the bromides. In another female troubled by coprolalia the bromides caused sullenness, and unrestrained coprolalia. In still another case the bromides caused an irritable suspicious state in which the patient became treacherous. A ten-year-old girl with procursive epilepsy had three attacks replaced by irregular kleptomania attacks, and she became suspicious and irritable. The last three cases reported by Alexander are particularly interesting. They are as follows:

A female; has *petit mal*. She denies all epilepsy. Long after her marriage, epilepsy,

although it clearly existed, was never suspected until she awoke her husband one night by beating his face with a slipper while unconscious. In the inter-epileptic period she is mild tempered, good humored, and suave. Under the bromides she becomes first irritable, and querulous during the inter-epileptic period, then paroxysmally furiously excited, and has vivid auditory and visual erotico-religious hallucinations and is coprolaliac. Mixed treatment has no such effects.

Since then Alexander has observed the following cases:

A thirty-four-year-old woman had *grand mal* followed by a dazed condition. Under the bromides these attacks were replaced by nymphomania with decided erotic manifestations, attended by religious hallucinations and furious masturbation. The use of ergot removed these manifestations, and the alternation of ergot with the bromides prevented them.

A forty-two-year-old woman had attacks of *grand mal* at the menstrual period and *petit mal* in the interregnum. These were both replaced by furor under the bromides.

Similar instances have been reported by Janeway, Dana, and Draper, and the older literature of medicine shows that these unusual effects were not unknown and are not now met with for the first time. Many years ago Hammond recorded the case of a gentleman to whom he gave at first fifteen grains of potassium bromide three times a day. These doses, which were slightly increased, soon produced symptoms of mental aberration, which disappeared when the medicine was stopped. Later the patient of his own free will insisted upon taking as much as one ounce of the drug a day. He developed marked insanity, delusions of persecution, and the delirium of grandeur. He became timid and cowardly, and finally so insane as to necessitate his removal to an asylum, in which recovery took place. In other cases hallucinations as to sight or sound have come on without there being any alcoholic history to complicate the case.

Bannister has also reported a condition of pleasurable intoxication with exaltation of mind after doses of bromide. Thus he reports the case of a man of thirty-six years of age who was a sufferer from frequent epileptic attacks and had slight mental impairment, but no true psychic disorder and no delusions. He was regarded as a quiet, well-behaved patient, except when the bromides were given him, when he became furiously

excited and unsafe. Thus before commitment to an asylum he had been convicted of homicidal tendencies. Small doses of the bromide rarely brought on the attacks except after several days, but as much as one and a half drachms daily made him unmanageable in three or four days. Stopping the bromide stopped the mania but allowed the return of the attacks. Bannister reports other cases, three in all out of twenty-one epileptics under his care. This and the following report of cases illustrate the clinical fact that the arrest of epileptic attacks by full doses of the bromides produces on rare occasions evidences of nervous excitation in other forms. Thus Baker in the *Medical Register* of December 8, 1888, reports the case of a male of eighteen years suffering from many convulsions each day who was said to be unable to take the bromides. Nevertheless he was put on fifty grains a day. This resulted in an arrest of the attacks, but they were supplanted by noisy outbreaks of ungovernable rage but no delusions. Another case of a young man was met with who had maniacal delusions which always disappeared if the bromides were stopped and the attacks allowed to return. A third case experienced mental confusion when the bromides stopped the attacks. Lepine also reports a case (*La Semaine Médicale*, Dec. 23, 1891) of a tabetic young woman who received sixty grains of bromide a day for convulsive attacks. In the course of a few weeks she became progressively weaker and delirious; and Lepine believes that difficult speech, delirium, and mental weakness often follow the use of bromides.

Holmden in *The Lancet* of October 18, 1886, also reports the case of a sailor aged thirty-three years who was in the habit of taking three drachms of bromide of potassium a day for the purpose of relieving insomnia, and who began to develop delusions and to be unable to collect his thoughts. Notwithstanding advice to the contrary he persisted in the use of the drug and developed delusions of persecution, maniacal symptoms, and suicidal tendencies, followed by great prostration. Recovery ultimately occurred.

Hameau (*Journal de Médecine de Bordeaux*, March, 1868) has reported the case of a young woman of twenty-two years who after taking no less than four and a half pounds of bromide of potassium in ten months developed cachexia, delirium, and after great prostration she died.

We have also the report of Eigner in the *Wiener Medicinische Presse*, Nos. 25-34, 1886, who records the case of a woman who took five pounds in a year, and after developing the ordinary symptoms of bromism developed tremor, a staggering gait, followed in a few hours by excitement passing into delirium with delusions of poisoning.

Thompson in *The Lancet* for May 11, 1889, asserts that he has frequently seen cases of maniacal insanity produced in feeble-minded persons and in the insane by drenching them with bromides. He does not, however, report any definite cases.

Gaston Lyon in his "Traite Elementaire de Clinique Therapeutique," 1895, says in some cases the bromides have to be stopped when given to epileptics as they either increase the number of the attacks or, if they stop them, bring on cerebral disturbances.

Marked untoward effects of the bromides are recorded by Soullier ("Traite de Therapeutique et de Pharmacologie," Paris, 1895), who states that in those instances in which a bromide cachexia develops there is in addition to feebleness commencing paralysis of the lower extremities, tremors, coldness, anorexia, and diarrhea, loss of intelligence and memory, and sometimes delusions, hallucinations, headache of an intense kind, and dilatation of the pupils. He quotes Le Gendre as having seen instances in which the bromides in overdose caused in epileptics symptoms simulating typhoid fever.

Laborde (*Gazette Médicale de Paris*, 1886) has seen sexual excitement follow the bromides, and Winters has reported visual hallucinations (*New York Medical Journal*, 1883). Alexander also quotes Kiernan and Monroe (*Medical Standard*, 1887 and 1891) as having met with cases of aphrodisia from this drug.

One conclusion seems certain beyond doubt, that in many cases of epilepsy the bromides are very capable of causing grave injury aside from the general depressing influence which they excite in all persons if given in full doses for any length of time.

In other instances in non-epileptic patients the use of the bromides has produced aphasia and apyrexia. Thus Lockhart Clarke has recorded an instance of a patient who said "contraction" for "subscription," and E. H. Clarke one who called a buckwheat cake a comb and a comb a buckwheat cake.

With the idea of gaining additional information about such important variations from the usual manifestations of the action of the bromides the writer addressed the following

letter to a number of well known neurologists and to physicians in charge of insane asylums:

DEAR DOCTOR—Within the last few months my attention has been called to the fact that the administration of bromide of potassium to certain persons, either sane or insane, produces a mental alienation, or influences unfavorably the manifestations of insanity already present. I am trying to find out whether the experience of one or two gentlemen has been duplicated by others having such a wide experience as you must have had. I enclose a set of questions designed to elucidate this point, and shall feel personally obliged to you if you will be good enough to answer as fully as you feel inclined the questions that I enclose.

The questions were as follows:

1. Have you noticed in your practice that the administration of the bromides in full doses ever produces mental alienation or true delusions?
2. If so, have the symptoms of the patient been those of sedation or excitement?
3. Has a single full dose ever produced such symptoms?
4. Do you think that such untoward effects of the bromides are more commonly met with than is generally thought?

The answers I have received are as follows as to Question 1:

Dr. H. M. Bannister, of the Asylum at Kankakee, Illinois: "I have seen epileptics who were rational and quiet made violently maniacal. This was directly induced by the bromides. I have also seen pronounced hebetude and mental depression caused by their use. As regards the production of true delusions by the bromides I cannot speak definitely any further than to say that I believe the causeless violence and the deep depression are both probably attended with false conceptions."

Dr. John B. Chapin, of the Pennsylvania Hospital for the Insane, Philadelphia, answers Yes; that he has seen mental alienation and true delusions follow the use of the bromides, and in an article by this author read before the Association of Medical Superintendents of American Institutions for the Insane in 1891 he records a number of cases closely allied to those under discussion in which the use of the bromides with other drugs such as chloral and morphine produced delusions or maniacal excitement. Thus in one case a man was brought to him with "acute maniacal fury," who had received fifteen grains of bromide of potassium every three hours for a time not stated, and chloral twice a day. The symptoms ceased when the drugs were stopped.

Dr. E. N. Brush, of the Sheppard Asylum of

Maryland, states that he has seen "in many instances mental confusion ranging from simple hebetude to low, muttering delirium induced in epileptics by the administration of bromides, conditions which have cleared up when the drug was stopped." He also says: "It is very common in institutions to receive cases, clinically very much like what has been described as confusional insanity, in whom either depression or melancholia predominated complicated by restlessness and excitement, sometimes conditions simulating delirium tremens, who have rapidly cleared up and made a good recovery when the bromides were discontinued and full diet, attention to disturbed digestive functions, often aggravated by the use of bromides, and ferruginous tonics have been administered. It is very easy to appreciate the reasons for all this. The patient at home has been restless and excited, as the result of mania or of melancholia with apprehension, and sleepless, as is almost always the case in the various forms of alienation in the acute stages. The family physician has naturally endeavored at the same time to quiet the patient and allay the worry and anxiety of the family incident to the patient's restlessness, and has considered the bromides as the best therapeutic means to accomplish these results. Much of this has grown out of the unfortunate teaching of a few years ago, as a result of which very many practitioners have the idea that all forms of insanity depend upon cerebral hyperemia and that bromides in one form or another have the property of controlling this and producing sleep." He cannot recall a single instance in which mental alienation or true delusions followed or was apparently caused by bromides if the patient was of sound mind before the drugs were given.

Dr. Richardson, of the State Asylum at Columbus, Ohio, in an experience of over twenty-five years and 6000 cases cannot recall an instance in which the bromide has caused insanity in a previously sane person.

Dr. James G. Kiernan, of Chicago, answers this question in the affirmative, and adds that it should be understood that he refers in his replies to the untoward action of potassium and the alkaline bromides on the sane, exclusive of epileptics.

Dr. W. Brown Ewing, Physician of the State Asylum for the Chronic Insane at Wernersville, Pennsylvania, says he has not met with any disagreeable symptoms.

Dr. John W. Ward, Chief Physician to the New Jersey State Hospital for the Insane, re-

plies as follows: "I take it for granted that you mean the bromides of potassium and sodium especially, and in reply, first, I would state that we have never had any symptoms of mental alienation following full doses of the bromides. We have used the bromides and particularly bromide of potassium in large doses for the last twenty-five years in this institution. We give it nowadays almost always to epileptics—at least, we regard it as the best remedy, either singly or in combination, in the cases of epilepsy that come under our care. The only ill results we have noticed in this hospital is a breaking down of the system as manifested by disordered digestion and pimples on the face where there is long continued use. This we have often obviated by associating the bromide with tonics in its exhibition—not always, but usually so—so much so that in nearly all, or quite all, the cases where now we propose its use for a continued period we associate it with tonics. Apart from this, however, we have never noticed any injurious effect following its use, even when giving twenty-five and thirty-grain doses three or four times daily for a period of months. I may state, however, that I have seen decided symptoms of dementia, in a few cases, follow the use of chloral hydrate. It occurs to me that this is possibly the case in the instance mentioned by your friends to which you refer. Where mental alienation has followed the use of the bromides, they may have been exhibited in association with chloral, as seems to be the fashion now in some sections. Under no circumstances do we ever administer chloral and bromides of potash or soda together. We have not infrequently had cases brought to us described as having the bromide habit, but in each and every case I have found that morphia was associated as a quieting agent with the bromide, and in such cases the morphia habit did exist, but the bromide habit did not. After exhibiting the bromides for months, we have been able to withdraw it at once without any evidence of any particular habit having been formed for it, or in any craving after the drug. When the bromide of potash was heralded in our magazines as a remedy for the habit of masturbation I gave it in large doses, with no bad effect following it, except in a few cases where it produced so-called bromide intoxication. This followed the exhibition of the drug in sixty-grain doses four times a day for several days in succession, with no particular benefit so far as the habit was concerned, but with a

decided muscular weakness and trembling and inability to walk, and in a few cases inability to co-ordinate the movements, much the same as in progressive locomotor ataxia. In each and every case, however, where such a result obtained, the patient soon rallied and regained his usual ability to walk in a few days after the exhibition of the drug was suspended."

Dr. H. A. Hutchinson, Superintendent of Western Pennsylvania Hospital for the Insane, Dixmont, Pa., says: "In answer to your letter I may say that I have never noticed any peculiarity in a patient following the administration of bromide other than the depression which is seen where it is pushed for a long time. I have never seen any delusions or other symptoms produced. We use but little bromide in this institution, almost none at all, and for years past my experience with this drug has amounted to almost nothing."

Dr. H. E. Allison, Medical Superintendent of the Matteawan State Hospital at Fishkill Landing, New York, says: "We seldom administer bromides in full single doses except in cases of great mental disturbance or in epileptic status. There are some few cases of epilepsy now which are receiving the bromides regularly in doses varying from thirty to sixty grains a day (ten to twenty grains three times daily). In occasional instances we have prescribed the mixed bromides. We have not noticed any mental alienation or true delusions which we could directly ascribe to the influence of this drug used in this manner.\* It is true that many epileptics possess delusions and that many pass into states of dementia; but these conditions arise irrespective of the use of the bromides, as there are certain patients here who possess delusions and who have not been put upon the bromide treatment. We have had one or two cases of bromism from the prolonged use of the drug, evidenced in the acne and in the dull, lethargic state of the patient."

Dr. Robert H. Chase, of the Friends' Asylum for the Insane, Frankford, Philadelphia, says he has seen the effects asked about in Question 1 and cites the following case: "Several months ago I was asked to see a young man, with view to having him placed in the Asylum. He was an epileptic, who had been taking the bromides under the direction of a 'traveling physician' who lived at a distance. When

\*In non-epileptic persons Dr. Allison has however seen excitement follow the bromides. See his answer to Question 4.

I saw him he was in epileptic furor, irritable and excitable, with persecutory delusions. I directed them to discontinue his medicine and ordered him to Atlantic City, where he rapidly regained lucidity and composure."

Dr. G. Alder Blumer, of Utica, has not met with symptoms of excitement, but he asserts that much harm is done by the indiscriminate use of the bromides.

Dr. L. Pierce Clark, of Craig Epileptic Colony of New York, replies: "I have never found any delusions produced by the administration of full doses of bromide. The character of mental alienation that I have most frequently noticed is that of dementia."

In answer to Question 2 Dr. Bannister states that symptoms of sedation and excitement were both present. In epileptic cases the excitement was marked rather than depression.

Dr. Chapin replies: "Sedation, mental hebetude, and subacute delirium." But in the report already quoted he cites cases of excitement.

Dr. Brush evidently thinks the symptoms are those of sedation rather than excitement.

Dr. Richardson says that it decreases mental activity.

In answer to this question Dr. Kiernan says the types are as a rule those of exhaustion, resembling acute hallucinatory confusional insanity; sometimes they are stuporous; very rarely emotional and exalted.

Dr. H. R. Allison has not met with excitement after the use of the bromides, but has with sedation, for he says: "We have administered the bromides usually in combination with chloral, in large single dose, to cases suffering from a quick succession of epileptic seizures—that is, to patients who were in the *status epilepticus*—and in such cases we believe that we have produced beneficial results by its administration, as the seizures have ceased and the patient passed into a quiet state, emerging therefrom exhausted, but afterwards progressing to a state of consciousness and ordinary health."

Dr. Chase replies the symptoms have sometimes been those of sedation, sometimes of excitement: "All the effects that I have ever noticed from the administration of bromide have been of sedation."

In answer to Question 3 few gentlemen have met with a case in which a single dose of bromide has had the effect of producing mental disorder.

Dr. Kiernan states that he has seen stupor,

acute hallucinatory types, and emotional exaltation resembling hypomania.

Dr. John W. Ward says: "I have never seen any ill effects whatever follow the exhibition of single full doses, say sixty grains of the bromides. In most cases it is tranquilizing. Sixty grains, however, we regard as an exceptionally large dose. Our usual standard dose, either as a tranquilizing agent or as exhibited to our epileptics, is from twenty to twenty-five grains, and repeated not oftener than three times per diem."

Dr. H. R. Allison says: "I am not aware that a single full dose of bromide has in our instances occasioned excitement, as it is only when such conditions of excitement prevail that the drug is administered."

Dr. Chase has never seen such effects follow a single dose.

Dr. L. Pierce Clark states: "I have seen a single large dose of bromide produce temporary amnesia which in a measure simulated the more permanent dementia seen after its prolonged administration."

In answer to Question 4 Dr. Bannister writes: "Yes, decidedly so, when large doses are given; not often with moderate doses carefully used."

Dr. Chapin also makes the same statement in the report already quoted.

Dr. Brush says: "For years I have been decidedly of the opinion that the administration of the bromides is subject to abuse on the part of the profession and that untoward effects are much more common than is realized. . . . I have made it a point for fifteen years to call attention to the dangers incident to the careless administration of the bromides."

Dr. A. B. Richardson, of Columbus State Hospital of Ohio, believes that the bromides tend to produce an increase in the dementia and hasten the degenerative process in epileptics, and he is much opposed to the use of the bromides in insanity as he thinks it impairs nutrition and the blood.

Dr. Kiernan thinks these effects are common.

Dr. W. Brown Ewing says: "Have never noticed any bad effects from the bromides. When long continued I always give two or three drops of Fowler's solution, as in epileptics. My experience is that the insane do not show the rash as soon as the sane."

Dr. John W. Ward says: "An opinion based on our experience here would lead me to think, as has already been stated above, that no untoward effects ever follow the use of

the bromide, other than breaking down already referred to in answer to Question 1."

Dr. H. R. Allison makes the following interesting reply to Question 4, interesting because it to some extent modifies the view obtained from reading his reply to Question 1: "There is a condition of excitement which I believe is produced by the excessive use of bromides usually combined with chloral in persons who are not epileptics, but who are simply suffering from mental disturbance, constipation, and lack of nourishment, which often occurs in cases recently admitted. Histories in such cases often indicate that the patient has been systematically drugged with large amounts of both bromide and chloral, and that too little attention has been paid to other features of the disease, apparently relying upon large doses of sedatives to produce calmative results. By reference to our prescription list I find that there are but six patients out of a population of 575 who are at present regularly taking bromides, and the house is almost entirely free from exhibitions of noisy excitement."

Dr. Chase thinks the bromides are abused.

Dr. L. Pierce Clark: "I think that untoward effects of the administration of bromide are much more frequently produced than is thought by the profession at present, although at times it is difficult to say just how much mental alienation is produced by its administration because the epilepsy itself has a tendency to produce mental symptoms almost the same as those obtained from the administration of the drug."

In the discussion of Dr. Mitchell's paper in May, 1896, the author of this article brought up the question as to whether the depressant and other harmful effects of the bromides were in a certain number of cases due to the potassium base, and later discussed it in the editorial columns of the *THERAPEUTIC GAZETTE*.

Physicians are wont to look for all the influences exerted to the bromine rather than to the base, and yet when full doses of any one of the potassium salts are used a definite and well marked physiological action takes place in addition to that produced by the bromine, iodine, or other medicament ingested with the potassium; further, the effect of the potassium in large amount is distinctly poisonous to all protoplasm, and in small doses it acts as a depressant to important vital functions, and for this reason preparations in which sodium is the base are to be preferred. With these views, however, some

of those present when Dr. Mitchell read his paper did not agree, and Dr. Dana of New York went so far as to speak of the possibility of potassium exercising any depressant effect as a "bugaboo" unworthy of credence and never seen in practice, although the writer of this article asserted that he and other clinicians had noted this well known fact by the bedside.

If we regard the matter from a purely scientific basis we find that as long ago as 1867 Rabuteau, from his investigations, laid down the rule that the poisonous action of the metals increased with the atomic weight amongst the elements of the same group—so that potassium, the atomic weight of which is 39, is more poisonous than sodium, the atomic weight of which is 23. Again, if we take chloride compounds, we find that chloride of potassium is a muscle poison and that chloride of sodium is innocuous. The studies of Guttman, Ringer, Claude Bernard and others prove that "potash salts are all far more poisonous than soda salts," and that the acid of the salt plays no part in producing the poisonous symptoms in such salts as the nitrate, carbonate, and chloride; or, in other words, potassium is always a poison in itself. Full doses of the potassium salts, we are told by Ringer, lessen the frequency and force of the heart's beats and make them irregular, and again "that soda salts in twice or three times the quantity which proves fatal in the case of potash salts produce no effect on the system save a passing weakness." Even in still larger doses soda salts exert no influence on the heart or the temperature, or on the brain, cord, nerves, or muscles, whereas potassium does depress all these functions or parts. In regard to bromide of potassium Ringer states, after discussing the experimental evidence: "It produces the same symptoms, in the same order, as other potash salts, and the more or less rapid induction of these symptoms depends on the amount of potash the salt contains. Bromide of potassium, like the chloride, paralyzes not only the central nervous system, but likewise the nerves, muscles, and heart, sooner than the nerves, and the nerves sooner than the muscles; and therefore we conclude that these effects of bromide of potassium, which it possesses in common with all potash salts, are due solely to the potash, the bromine playing no part in the process."

Leaving the scientific side of the question, and turning to that of practical therapeutics,

we need only reiterate the fact that we have seen potassium salts in full doses produce depression, and quote from the New Sydenham Society's Translation of the Lectures on Pharmacology of Professor Binz, of Bonn. Thus, after detailing the symptoms produced by large doses of bromide of potassium in healthy young men, in whom there was a fall of temperature and feebleness of the heart, Binz says: "Control experiments with potassium chloride showed that the effect on the heart was always largely due to the potassium. Later on we shall have yet to consider in detail the very marked effects which the salts of potassium exert upon the heart's action."

And again Binz states: "Sodium bromide, taken by the same individuals in the same manner as the potassium salt, produced the same effects on the nervous system, but not on the pulse and temperature."

To quote once more from Binz: "If potassium bromide has been taken for a considerable time, or even for a few days only, by susceptible persons, it has been observed to affect the heart unpleasantly, the pulse becoming feeble, irregular and intermittent. This is doubtless due to the potassium, which, constituting thirty-three per cent. of the salt, may very readily, given in the large doses above mentioned and in a form so easily absorbable, exert its depressing influence upon the heart's action. *For this reason sodium bromide is preferred by many physicians.*"

Recently we are told in the London *Lancet* of April 4, 1896, that "the coroner for Middlesex held an inquest on March 26 on the body of a man whose death appears to have been due to excessive indulgence in what is usually considered to be a comparatively safe drug—namely, bromide of potassium. Suffering from neuralgia, he had been in the habit of taking this salt in doses of two to three drachms. The drug does not appear to have produced any of the usual symptoms of bromism, but may have caused the palpitation of the heart of which the deceased had frequently complained. During the night of March 23 he felt very cold, gave two deep gasps, and almost immediately expired. The medical practitioner who was sent for stated at the inquest that he found the deceased quite dead, his mouth wide open, the eyes half-closed, and the pupils somewhat dilated. A bottle containing the drug was on the table, and examination showed that it was pure bromide of potassium. The witness attributed death to failure of the heart's action

caused by taking the bromide. This case is interesting for several reasons. It proves in a marked manner the danger of taking any drug, however harmless it may be reputed to be, in large and repeated doses without the advice of a medical man. No doubt in this instance a medical attendant would have recognized the depressant action the salt was exerting upon the heart and would have discontinued its use. Even in the most modern works on therapeutics this danger is not mentioned, yet it is well known that all potassium salts cause 'depression, shown by diminished energy of contraction of the cardiac muscle, with final stoppage in diastole' (T. Lauder Brunton). As this bromide is constantly administered in large and repeated doses, the action of its basic constituent should always be borne in mind, and if signs of its depressant effect are observed its use should be abandoned, the bromide of some other base being selected if in other respects the action is beneficial. Many secret remedies for 'fits' contain this drug in large quantities, and it is evidently desirable that the public should be warned that their use is not unattended with danger."

We may conclude therefore that the bromides are not as harmless drugs as some have thought, and in some cases they are capable of producing maniacal delirium whether the patient be sane or insane.

Finally, if they are used the sodium preparations are to be preferred to those of potassium.

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#### SOME NEW METHODS OF RESUSCITATING STILL-BORN AND FEEBLE-BORN INFANTS.

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The causes of still-birth and feeble-birth are numerous and of a varied character. Among these may be enumerated ante-partum hemorrhage from placenta previa, or early separation of placenta; infection from variola, rubeola, or scarlatina; the action of ergot; uremic poisoning in eclampsia; long delay of fetal head in pelvic cavity; compression of head from instruments; breech presentations, compressing the cord; twisting of cord around the neck of fetus; actual disease of cord from syphilitic degeneration; certain diseased states of placenta.

For a clear comprehension of the pathology, peculiar features, and symptoms of still-birth and feeble-birth it is necessary to



divide the subject into three heads: the still-born, the feeble-born, and the dead-born.

Between all of these forms there is a marked distinction; and yet in certain respects they bear a considerable resemblance to each other. In the first place it is necessary that we should have a clear conception of what is meant by the term still-born. Does the term apply indiscriminately to a dead-born infant and equally to a mere feeble-born infant? The term is really applicable to neither condition, but to a state where all the vital functions are in a state of temporary suspension.

*Definition of Still-birth.*—The general features of the still-born infant present all the indications of suspended animation; but this suspension, apparently profound, is only temporary, and vitality can be fully restored by proper means. In the still-born no arterial pulsation can be detected. The vital functions of cardiac action, respiration, and it may be secretion, reflex action, sensation, nervous power of the great centres, the brain, medulla, and spinal cord, and vaso-motor system are in a state of temporary suspension. Here then is a very striking resemblance between the general features of the still-born and the dead-born, and the difference can only be ascertained by the observation of certain symptoms, and by proper tests.

In defining the difference between the two conditions I would make the following signs the groundwork of diagnosis:

In both conditions the vital functions are in a state of absolute suspension—in the dead-born, permanently; in the other, temporarily. Again, in the one the vital functions cannot be resuscitated, while in the other they can be restored. The general condition of the still-born infant bears an exceedingly close resemblance to that of actual death. The cardiac sounds are absent and there is entire suspension of the pulse; the muscles are perfectly limp and relaxed; the function of respiration is absolutely suspended; yet the vital spark is retained and capable of being restored to vigorous life.

*Definition of a Feeble-birth.*—I would define the feeble-born, which is often mistaken for the still-born, as a state in which there is only a partial suspension of the vital functions, as the function of circulation, respiration, sensation, volition, reflex action.

The cardiac sounds are barely perceptible; the function of respiration amounts to a mere occasional sigh, or gasp; the reflex functions of the cord are greatly impaired, and so are the functions of sensation and muscular or

voluntary action. The power of swallowing is usually absent; the pulse is so feeble as to be scarcely perceptible; the cardiac sounds are exceedingly faint and can be barely detected.

This is the feeble born infant. It is a state which we must not confound with that of the still-born. Then how shall we distinguish the dead- from the still-born? Not by the suspension of cardiac action, respiration, reflex action, voluntary action, the function of sensation, for there is absence of all these functions in both conditions.

For immediate purposes of diagnosis probably extreme reduction of temperature of the dead-born infant, the temperature rapidly falling to the standard of the surrounding atmosphere, constitutes our most certain test. The temperature in the rectum of the still-born may fall to a slight subnormal degree, say two or three degrees, but never to the extent of that found in the dead infant. The fetus has for nine months lived the life of an amphibious animal, and possibly from this cause after birth it can withstand a suspension of vital function longer than ordinary cases of asphyxiation.

The physicians of the London Association for the Rescue of the Drowned make a statement that after four minutes of immersion and asphyxiation the restoration of life becomes impossible. I am sure that I have seen the still-born infant, when there was complete suspension of cardiac action and respiration for a period of twenty or more minutes, resuscitated and developed into a healthy childhood. Indeed it is difficult to decide what length of time a still-born infant may remain in a state of asphyxiation and recover. And there is one all-important rule to govern us in the management of these cases which should never be dispensed with, and that is never to relax our well-directed efforts at resuscitation until the temperature in the rectum of the infant falls far below the normal, say ten, fifteen or twenty degrees below the normal standard. Then we may know that it has reached a degree incompatible with life. My rule of late years is to test the temperature in the rectum every two or three minutes. If that remains near the normal standard I have positive encouragement to persevere in my efforts; if it suddenly falls ten or fifteen degrees I then have assurance that the case is hopeless.

There is another sign which should govern us in discriminating between the dead- and the still-born, and that is the state of the pupil. In the dead the pupil is widely di-

lated, while in the still-born it is but little, if at all, relaxed.

*Treatment.*—In my obstetrical practice during the past six or eight years, in all cases of still-born and feeble-born infants under my care, I have experimented very carefully and made very accurate observations on the hypodermic method of treating these cases. I have found the subcutaneous medication the most prompt, certain, and successful method, both for the restoration of the still-born and feeble-born. I find it the most convenient, easy of application, and consumes less time than any other method.

The system of the still-born and feeble-born infant responds more promptly and energetically to subcutaneous treatment than any other.

The materials for treatment are always at hand and convenient. Of course these little creatures are incapable of swallowing either nourishment or medicine, and the chief and only avenues left are through the skin and intestines.

In all cases of still-born infants, whether the infant be dead or only still-born, my method is to insert in each arm by hypodermic syringe four or five drops of whiskey and a single drop of tincture of belladonna. If the infant is only still-born the nervous and circulatory system will respond quickly and promptly to the stimulant action. If the infant is dead beyond resuscitation there will be no response whatever. But if there is no response, or a very feeble response, I go still further by injecting a drachm or two of warm sterilized water under the skin, and about two drachms with a drop of aromatic spirits of ammonia into the intestines, and then await the result. In my experience if these measures fail to produce reaction, it constitutes a fair test of the existence or absence of vitality. If the temperature continues to decline in the body of the infant while these measures are in progress, we may rest satisfied that the vital spark has taken its flight.

The first indication of a response to the action of the hypodermic remedies in these cases of profound asphyxiation is very soon present after the hypodermic. The muscles of the eyelids contract, and the eyes, previously closed, suddenly open; then the respiratory muscles are brought into rapid action, the glottis is expanded, air is inhaled into the lungs and suddenly exhaled, forming the shrill cry of the new-born infant.

These phenomena illustrate to us the energetic action of the stimulants on the great

nervous centres, the brain, medulla, and spinal cord. Then follows the development of cardiac action and pulsation at the wrist, which were previously dormant. In these cases I always observed the development of reflex action in the respiratory nerves before that of cardiac action. Invariably following restoration of respiration there was development of cardiac action; they followed each other as cause and effect.

In cases of marked cyanosis I found subcutaneous injection of warm water at a temperature of 102° or 103° flushed the circulation, aided in the process of oxygenation, and stimulated the action of the heart and increased temperature.

I will give here the history of three or four cases for the purpose of illustrating the symptoms and treatment of the three varieties of condition treated of in this paper—the still-born, feeble-born, and dead-born.

CASE I.—After a very tedious labor with a rather contracted pelvis Mrs. W. was delivered of a still-born infant at full term. It was her first child, was a male, and all concerned were exceedingly desirous of its restoration. All of the ordinary remedies were brought into vigorous requisition without effect. The idea then occurred to me for the first time to inject whiskey under the skin. The infant had then been apparently lifeless for about twenty minutes. Six drops of whiskey were injected in each arm. It seemed to give no pain at the time, as the infant was perfectly insensible. But the response on the part of the great reflex centres was prompt and speedy. The eyes were thrown wide open; the muscles of the glottis contracted, expanding wide that opening; a deep inspiration and expiration followed; and the result was a shrill cry, and a succession of cries. Then the cyanosis cleared up and life was restored. I should have mentioned that in this case there were no cardiac sounds, no pulse, and absence of all respiration previous to the hypodermic.

This may be accepted as a fair example of a still-born infant treated by this method.

CASE II.—This case is related as an example of a feeble-born infant. At eight months' term Mrs. M. gave birth to this infant, which was so feeble that it could neither cry nor swallow. There were faint cardiac sounds, but no pulse was perceptible. There was considerable cyanosis. The respirations did not exceed ten per minute, and were exceedingly shallow, and the nervous system appeared insensible to impression. Six drops

of whiskey and one drop of tincture of belladonna were injected in each arm. This did not fail to develop reflex action. The respirations became more frequent and fuller. The action of the heart responded, the pulse became perceptible, and the cardiac sounds became more distinct; and after a reasonable time powers of deglutition were restored, at first feebly, then sufficient to swallow a few drops of weak milk punch, which was repeated every few minutes.

The subcutaneous injection of whiskey was repeated only once, and the infant was swathed in warm cotton-wool.

By continual care the infant was restored and grew to be a large, healthy child.

CASE III.—This was a case of a dead-born infant, and its history is cited here only to show the difference in the symptoms of the still- and dead-born infant. Mrs. F. at term gave birth to this infant after a tedious labor. In this case there was a partial placenta previa, and the mother sustained much hemorrhage. When the infant was born it presented the appearance of one made of white wax; it had evidently been drained of nearly, if not quite, all of its blood. There was entire absence of cardiac action, respiration, and a rapid decline of temperature after birth, and dilatation of pupils. Injections of whiskey and belladonna, of warm water, applications of dry heat, attempt at artificial respiration, all failed to produce the least response.

CASE IV.—Mrs. M., with contracted pelvis, was delivered after a very tedious labor, by forceps, of a dead-born child. In this case there was rapid decline of temperature in the rectum, which continued until it reached the standard of the surrounding atmosphere. Soon after birth the pupils were widely dilated. Respiration, circulation, reflex action, sensation, were all absolutely suspended. Various methods of resuscitation were tried in this case, as hypodermic injection of whiskey, application of dry heat, injection of warm water in the intestines, but without avail.

In past years I have fairly tested all of the usual methods in vogue for the resuscitation of the still-born and feeble-born infants, as artificial respiration, the rapid reversal of the body of the infant to upright and the reverse positions in the air, Dr. Le Bordis' late suggestion of alternate withdrawal of the tongue, immersing the infant alternately in warm and cold water; but I infinitely prefer the method of hypodermic treatment, and this

is to be followed by the application of dry heat. The application of dry heat may be made by means of the gum-elastic bag partly filled with hot water, over which a doubled blanket is laid, and on this the body of the infant is placed and the soft blanket folded over it. The hot-water bag generates ample heat around the infant to constitute an efficient incubator, and may be arranged in a few moments in the absence of a regular apparatus. If necessary, the hypodermics may be repeated as required while the infant is subjected to this artificial heat, until it regains the power of deglutition, when a drop each of aromatic spirit of ammonia, tincture of belladonna, and brandy may be administered in milk or tea until the circulation and temperature are established.

Some three or four years ago I published a paper in the *THERAPEUTIC GAZETTE* describing briefly the treatment of still-born infants as detailed in the present paper.

Further experiences in the observation and treatment of still-born and feeble-born infants has not only served to confirm my original opinions, but also to increase my knowledge of the pathology and the best methods of managing these cases.

The present paper embraces also a description of the pathology and treatment of that class of cases designated as feeble-born infants, which my former paper did not. It is well known to all obstetricians that a large proportion of feeble-born infants die sooner or later—some within a few minutes after birth, some within a few hours, and others after a few days. The continuance of life in this class of births depends on the maintenance from birth of cardiac action and corporeal temperature. If these important functions are neglected in the beginning the infant will in a majority of cases succumb. Hence the importance attached in this paper to the symptoms of the feeble-born, and to a positive and early line of treatment of these cases.

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#### *FAULTY HYDROTHERAPY.\**

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Despite its antiquity water has not obtained a firm footing in therapeutics; despite its marked clinical results it still requires to be brought to the attention of practitioners;

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\* Read before the German Medical Society of New York, Feb. 1, 1897.

despite its espousal by the best authorities in ancient and modern practice and literature the average medical man is not familiar with its history, action, and merits. What are the reasons for this lack of appreciation of hydrotherapy existing in the medical man?

1. The difficulty of applying water systematically and with precision, arising from lack of facilities and the natural repugnance to water existing in the human mind.

2. The espousal of water as a remedy by empirics and ignorant laymen who have brought it into disrepute. (See *New York Medical Journal*, Oct. 26, 1895.)

3. The absence of instruction in hydrotherapy in the curriculum of medical schools. To this lamentable circumstance may be charged the ignorance of the rationale of the action of water and the unfamiliarity with its technique which are found among the majority of medical men.

In this article it is proposed to deal only with the latter, because it strikes the author as the chief obstacle to the recognition of water as a remedial agent. The indifference to a definite technique has rendered its application in the hands of many unsuccessful and discouraging.

The latter is the chief cause of the indifference of the profession. Failure is the sure result of inattention to details. As a physician must judge the value of a remedy by his experience, it followed that failure to achieve the results which the experience of others had led him to expect has brought this remedy into disrepute, the fact unhappily remaining unrecognized that not the remedy but its application was at fault.

To stem this powerful current of prejudice and opposition has been my aim for many years.

Water is so simple, so easily applied, that any one seems justified in using it, and yet I say with a full consciousness of the import of my words that no remedy in the entire materia medica demands a like judgment and care in its application.

The following incident may serve to illustrate this proposition and serve as a warning:

In February, 1889, I presented the first plea for the Brand method of bathing in typhoid fever before the New York State Medical Society. On the day preceding this meeting a now eminent teacher of medicine informed me that he never intended to use so heroic a remedy, because he had seen the able visiting physician of the hospital in which he had served as an interne "kill a

patient" by this treatment. Further inquiry elicited the fact that this so-called Brand bath consisted in wrapping the patient in a sheet, placing her on a Kibbé cot and sprinkling her with ice-water until the mouth temperature showed marked lowering.

A brilliant young man, then already a teacher and hospital attendant, was bitterly prejudiced against a method of bathing of which neither he nor his justly eminent teacher knew anything. Both regarded the lowering of temperature as the chief aim of the cold bath, and looked upon any mode of applying cold water as a bath, losing sight of the difference in effect arising from a difference in technique.

A glance at the true object and rationale of the cold-bath treatment of typhoid fever introduced by Ernest Brand will clearly show the difference in effect arising from a deviation from its exact technique. Typhoid fever is an infectious disease, producing in the human organism a toxemia which overwhelms the nervous system, upon whose integrity the functioning capacity of all the organs depends. Death is due to the failure of one or more of these organs to properly functionate. It has been definitely ascertained that high temperature, which tradition has raised into a hydra-headed monster, is not the chief danger in this disease. If the pulse, respiration, nutrition and the secretions could be maintained near their normal standards, high temperature, significant though it be as a symptom, may well be disregarded as a lethal factor. Hence, when the illustrious Brand devised the method of bathing by which thousands have been saved from certain destruction, reducing the mortality of typhoid fever to almost *nil*, he distinctly urged the profession to direct its main efforts to the sustenance of the nerve centres first, and to the temperature afterward. Although the latter was regarded as an index of gravity in most cases, the bath was not intended to combat it. A bath of 65° F., with friction for twenty minutes every three hours, whenever the body temperature reached 102.5° F., is calculated to arouse the nerve centres from their lethargy and give an impetus to all the dormant functions depending upon them. That a higher temperature of the water and prolongation of the bath would more positively reduce body heat is a fact well known to hydrotherapists, but it is a fact still unappreciated by the average practitioner.

The low temperature of the bath irritates the peripheral sensory filaments, from which

the irritation is conveyed to the central nervous system, to be reflected upon the heart, lungs, and secreting organs. Friction adds to the irritation by multiplying it, the cold water being kept in motion; cold affusion over head and shoulders is added to promote the same object. To whip up the nervous system (as is done in poisoning by narcotics) is the object of the Brand bath, and right well is this accomplished.

The lethargic patient arises from the bath refreshed, invigorated, with brightened eyes, just enough fatigued to drop into gentle and much needed slumber—a halt, brief and feeble though it may seem, is made in the steady but sure progress of the toxic undermining of the nervous system. The latter again lapses into lethargy, not always evidenced, as I would have you bear in mind, by delirium or stupor, but just as surely evidenced by the rapid and compressible pulse, the shallow and rapid respiration, pale or cyanotic hue of the countenance, deadly cutaneous pallor, diminution of urinary excretion of toxic elements, etc. Again the patient is submerged, again he is rubbed and douched, and again the enemy is thrown into confusion for a longer or shorter period. Thus step by step his advance is disputed. Oh, how weary and full of travail is the fight to patient, physician, and friends!

But day by day, with occasional disappointments, a fifth, or a quarter, or a half degree of temperature is gained; the heart maintains its vigor, the kidneys increase their work, the stomach receives more kindly the proffered nutriment, and sleep is won.

The enemy cannot be routed, the disease cannot be shortened, but we hold him in check surely and completely until his reinforcements fail. The bacterial life period reaches its end, the toxins cease to be evolved, and at last the physician stands conqueror of this deadly enemy. This is the true aim, the correct rationale of the Brand bath. Were temperature reduction the chief need, we would hold the key to the situation in our splendid coal-tar antipyretics; were pulse reduction the desideratum, *veratrum viride* would prove an "open sesame;" were nourishment the chief object, there is no lack of this in modern culinary and chemical art. But all these are as naught in the face of a toxemia which overwhelms the nerve centres of the most robust, as well as the most feeble, patients.

That the cold bath devised by Brand meets the issue has been shown by the most incontrovertible statistical data in medical history.

Why deviate from the method except for good reasons? To wrap the patient in a sheet and then sprinkle him with ice-water, as was done in the case cited above, is a deviation from the correct technique of the typhoid-fever bath. Such a procedure does not fulfil the main object of arousing the nervous system. After the first shock has passed no opportunity is given for reaction, because the sprinkling of ice-water continues; the cutaneous vessels and the elastic tissue of the true skin contract, as evidenced by cutis-anserina; the extreme cold imparted by the wet sheet, without remission, benumbs the sensory nerves and thus impedes the transmission of the shock and subsequent stimulus, even if the latter has ensued in an exceptionally strong individual. The absence of friction in this faulty technique (which in the Brand bath stimulates to reaction, and by widening the blood area of the skin cools a large quantity of blood) frustrates completely the true aim of the cold bath.

The surface temperature is indeed reduced by this improper method, but the blood is driven to the interior, congestions are favored, the organs are overloaded, and the patient emerges from such a bath (save the mark!) a shivering, cyanosed weakling.

Even such a sheet-bath as was used by the distinguished hospital attendant referred to could, by proper understanding of the rationale, be made to serve a useful purpose. If temperature reduction were not the object, but nerve stimulus; if the sprinkling were done rapidly with water not less than 60°; if each part sprinkled were thoroughly rubbed with the flat hand of an attendant until warm, and thus every part of the body sprinkled, rubbed, slapped and warmed up until it no longer responded by warming up, the dangerous contraction of the cutaneous vessels would be obviated, the vaso-dilators would be stimulated, a reaction would take place whose transmission to the brain would be salutary.

That the false procedure above quoted proved fatal is due to an error in technique based upon a misconception of the rationale of the cold bath in typhoid fever.

I am happy to state that both preceptor and pupil are now practicing the Brand method with success. They have mastered the technique and follow it closely with rare exceptions. That the best judgment must be applied to the technique of this treatment becomes apparent very soon to the observant practitioner. The ideal results obtained by

Brand and others in 1200 cases without mortality can only be realized by following the exact technique of Brand. This consists of beginning the friction baths at 65° before the fifth day, and continuing them without fail every three hours, night and day, when patient is awake, so long as his temperature reaches 102.5°. V. Ziemmsen testifies whenever he deviated from the strict Brand method he had cause to regret it, and my own observation corroborates his experience.

I have repeatedly pointed out that even eminent clinical teachers have failed to obtain ideal results because they deviated from the ideal technique, each one modifying it to suit his own fancy. That physicians must blindly follow the dictum of Brand or of any other is not demanded, but the Brand method, which is definite in its technique, must not be charged with failures attending its modification any more than Bergman's aseptic surgical technique should be charged with failures attending the neglect of any one of its exacting demands. For instance, the physician who does not begin bathing before the diagnosis is positively made by the roseola cannot expect that freedom from lethal complications which early bathing surely brings, though he bathe exactly according to Brand throughout the case. He will surely have a smaller mortality than another who begins regularly in the second or third week, or one who uses higher body temperatures as indications for the bath, or one who adopts higher bath temperatures to please the patient or his friends. I plead for attention to the *exact technique* of Brand in all cases not presenting distinct contraindications.

That a few such cases do occur my own observation has demonstrated. Hospital cases, for instance, rarely come in before the fifth day; hence the constant prevention of diarrhea, tympanites, hemorrhage and perforation is impossible. In private practice it is my custom to bathe so soon as the symptoms are at all suspicious. That benefit is derived from bathing in any febrile disease cannot be denied. While, therefore, it can do no possible harm, the early bath is an important step in the inauguration of the most successful treatment, if typhoid develops.

Professor Osler states, and his opinion may be confirmed by all who follow Brand's technique strictly, "that consciousness is restored, stupor is removed, the heart is invigorated, sleeplessness is diminished, and mortality is reduced to a minimum by these baths."

Such results can only be obtained by mi-

nute attention to all the details of the Brand method; the latter is an innovation upon all other cold-water treatment, be it by baths, douches, or affusions, which are to reduce temperatures.

I have dwelt so long upon this illustration of my subject because extensive observation and careful inquiry among practitioners in Germany and in this country have convinced me that to losing sight of the true principles of the Brand baths, and consequent too liberal deviation from its correct technique, may be ascribed the lack of appreciation of the therapeutic value of this method of bathing, and its consequent feeble recognition by the profession. Those physicians who have mastered its technique will agree with Professor Delafield, who said in a clinical lecture in December, 1892, at the Roosevelt Hospital, that "First, immersion in cold water is the only real treatment of typhoid fever; second, the only way to practice this treatment is the exact method of Brand."

The view of this justly eminent teacher is rendered more valuable for the purpose of illustrating my theme by the fact that on February 18, 1890 (nearly three years previously), Professor Delafield said in the New York Academy of Medicine, while discussing my paper on the treatment of typhoid fever, that "he had no real experience with the Brand method of cold bathing; that the point brought out in the paper that in the United States we have never really tried this treatment was correct. It was a fact, he believed, that scarcely any one here had carried out the whole treatment thoroughly" (*New York Medical Record*, March 22, 1890, p. 336).

Here is an illustration of true scientific candor. A great teacher becomes convinced of the value of the Brand method and of the necessity of an exact technique; he at once puts it into use in his practice, and in three years gives his students the result in that pithy manner for which he is noted. Can there be a more telling illustration of the value of exact technique in hydrotherapy than these candid statements of this eminent teacher?

Physicians always insist upon exact dosage of medicinal agents, the exact time and mode of their administration, frequency of repetition, and even their exact preparation. I plead here for the adoption of similar care and attention to the prescription of water as a remedy.

That precision in technique is quite as important in the treatment of chronic diseases

as in the acute may be readily demonstrated. That the medical profession has not yet accepted the idea is illustrated by the announcement of a certain hydrotherapeutic establishment which reads, "Give the bearer a douche, sulphur bath," etc.; the physician may strike out the bath "not wanted." One may as well write a prescription reading, "Give the patient a dose of quinine, morphine, or sulphonal," without specifying exact dose and mode of administration. Such a prescription would be regarded as incomplete, indeed as absurd. That a prescription for a bath or other hydriatic procedure without exact statement of temperature, duration, pressure and method is equally absurd, needs but to be pointed out.

The import of pressure, temperature and duration of every hydriatic procedure requires to be impressed with emphasis. Every physician realizes the difference of effect arising from different temperatures, and yet we commonly read directions for cold baths, tepid baths, hot baths. By a cold bath is commonly understood a bath to which no hot water has been added. Such a bath in New York City would be 45° F. in midwinter and 75° in midsummer, as ascertained by exact observations in the Hydriatic Institute. That 30° would produce an enormous difference in effect goes without saying. And yet the exact temperature of a bath is rarely designated.

Just as the Bränd bath has failed in the hands of those who modified or changed its technique, so has hydrotherapy in chronic cases failed because of inexact technique. I reiterate that temperature, pressure, duration and method should be prescribed and practiced with as much exactness as the dose, prescription and method of administration are stated in prescriptions of medicinal agents. The treatment of phthisis may serve as an illustration. There is no chronic disease whose intractable character is so well established, and yet I may say without fear of contradiction that it is more amenable to treatment by hygiene, correct diet and a judicious hydrotherapy than many other diseases which are regarded as more difficult to treat. Especially in the earlier stages, ere the temperature becomes elevated and the pulse becomes rapid, when the chief manifestation is a general depreciation of the nutrition, which in the progress of tuberculosis becomes the main reason for the advance of the latter, I have observed favorable results from hydrotherapy which are striking and instructive. In the wards of the Monte-

fiole Home for Incurables, where cases are observed by a large staff of expert medical men, and in my private practice, where microscopical examinations have been made of the sputum in the Vanderbilt Laboratory, and by other experts, these favorable results have again and again been verified. The proper technique in these cases was based upon improvement of the nutrition. That by a judicious application of douches, of moderate and low temperatures, such improvement may be obtained there is no doubt. The method evolved from practical observations which I have introduced at the Montefiore Home is a gradual but progressive accustoming of the patient to low temperature and high pressure. We begin with dilating the superficial cutaneous vessels and thoroughly warming the patient by a dry pack—*i.e.*, an envelopment in long-haired blankets or a hot-air bath, short of perspiration. Thus prepared the patient is subjected to a circular or needle bath under twenty-five pounds pressure at a temperature of 95°, gradually reduced in the course of one minute to 85°, and followed by a fan douche of 90°, reduced daily by one degree at a pressure of twenty pounds until 65° F. and thirty pounds pressure are reached. Thus the stimulating effect of a stream of water thrown upon the surface under pressure counteracts the possible heat-abstracting effect of a water temperature, which is comparatively low because the patient had perhaps never been exposed to it. The shock to the sensory nerves is gentle, the reaction proportionately so. These are intensified daily until a decided reflex effect is produced upon the respiration, deepening it, the circulation steadying it. The heart becomes more vigorous; more oxygen is inhaled if the patient be made to walk gently in the open air after the treatment. The result is an improved hematosiis, a better circulation in the stomach and other organs, a stirring up of the leucocytes—in brief, what is called a general tonic effect.

If this careful technique be not observed, if the patient be subjected to lower temperatures or higher pressures in the beginning, his reactive capacity would not be equal to the demand and the result would be serious and discouraging. To illustrate I may refer to a recent incident. A young hydrotherapist, recently returned from Germany, expressed great surprise that a case of phthisis which had been under hygienic treatment and diet, improving and gaining weight

steadily, had begun to lose weight after douches had been used one week. To her question as to the probable cause of this result I replied that there was "something wrong with the hydrotherapy used in the case." Upon asking her to detail the technique, she said that she had followed the plan adopted at the Montefiore Home—to dilate the cutaneous vessels before applying the douche. When she was asked how long the patient remained in the hot-air bath, the reply was "until she perspired freely." Here was the defect of the technique.

The object of the hot-air bath in phthisis and other diseases manifesting defective nutrition and a tendency to emaciation is to dilate the cutaneous vessels for the purpose of influencing reaction, but not to promote tissue change, as evidenced by excessive rise of temperature and perspiration. As the latter method is adopted in treating obesity, its inappropriateness in phthisis is at once apparent. Bearing in mind the feeble circulation in phthisical patients, a gradual education of their reactive power, a daily neuro-vascular discipline as it were, accomplishes results which are striking. I have published the records of cases in which weight was increased, cough, fever and bacilli disappeared, which have remained well and living in New York three years, though they had been condemned to exile by eminent consultants. I well remember a case in the Montefiore Home which gained thirty-three pounds. No specific effect—bactericidal, as is now the fashion, or otherwise—is claimed; the effect is solely and simply an improved nutrition and probably a more active circulation of leucocytes in the main vascular channels, which has been demonstrated by Winternitz and confirmed by Thayer and others.

In cases of neurasthenia, atonic and nervous dyspepsia, simple chlorosis, the results of hydrotherapy applied with judgment and skill in building up nutrition and improving hematosis are striking. As Dr. Draper has justly said in his valuable paper on Hydrotherapy, read before the Academy a few years ago, "its results in certain chronic diseases are striking; it seems to be more effectual than medicines."

There are many cases, indeed the large majority in the hands of the general practitioner, for whom institutional treatment is not available, and who demand immediate attention. To manage these successfully demands a closer study and more thorough acquirement of the rationale and technique

of hydrotherapy. Such enlargement of knowledge will redound to the benefit of patient and physician alike.

An example of faulty hydrotherapy may be of interest here. In a published lecture on neurasthenia, delivered by an eminent neurologist, the following may be found: "The cold-water treatment in the morning is apt to bring about a very beneficial change. I will suggest various methods of applying the treatment, which you can use in all cases, rich or poor, old or young. The top of the head and the nape of the neck are points of attack. Have the bath-tub one-third full of lukewarm water, so that the patient may stand in it without getting chilled; then, if the bath has a douche attached, you may allow the shower to play on the top of the head and then down the nape of the neck; or you can slap the nape of the neck and the spine with towels wrung out of very cold water; or let him take a large sponge dipped in cold water, put it on the top of his head and let the cold water run down his back. Nothing produces so good an effect on the nervous system as the trickling of cold water; it is not so good simply to wash with cold water; trickling out of a sponge is the proper way to apply cold water. No matter what the origin of the neurasthenia may be, it is best to begin with this cold-water treatment."

Note the indefiniteness of this technique. According to the locality in which *cold* water is administered its temperature may be 40° in midwinter or 80° in midsummer. And yet this lecturer says not a word about temperature. The trickling of cold water over the body needs but to be mentioned to provoke a feeling of chilliness; playing a douche of cold water over the head and spine of a neurasthenic of the excitable type would set him wild, while the same treatment may benefit the depressed neurasthenic if it be brief and daily and gradually lowered.

The recklessness of these suggested modes of applying cold water becomes more glaring when compared with the same lecturer's directions for the drug treatment. He says: "I often see cases where strychnia is needed badly. You may give any of the salts of strychnia. The proper way to administer the drug is in pill form or in mixture. Begin with  $\frac{1}{80}$  of a grain three times a day; if the patient tolerates strychnia the dose should be increased until he takes  $\frac{1}{30}$ , or  $\frac{1}{20}$ , or even  $\frac{1}{10}$  of a grain three times daily."

This lecturer is equally explicit with regard



to phosphorus, stating the preparation, dose, combinations, etc. If he had followed this course in describing the water treatment by stating the temperature of cold water and of the *very* cold water; the pressure of the douche, which from the height of a few feet is a chilling drizzle, while from a height of fifty or sixty feet it stings and arouses the vaso-motor nerves to an intense and pleasant activity; the duration of the treatment, which if left to the patient often bears unhappy consequences; he would not have left them ignorant of the proper method. I am glad to say that this teacher has recently published a valuable work on nervous diseases, in which the directions for hydrotherapy are quite precise and well considered.

Another eminent teacher advises neurasthenics to plunge into a tub of warm water (temperature not being stated), then allow cold water to run into the tub until the water surrounding the patient is cool; this temperature again being left to the judgment or caprice of the patient. Here the very common error is committed to obviate shock. This is the horrid bugaboo of inexperienced prescribers of cold water, who disregard the fact that the reaction following the shock is the aim of hydrotherapy when applied as a tonic or as a nerve stimulus, and that the reaction is exactly in proportion to the preceding shock. The bath just referred to does not fulfil its object properly, because the surface vessels are relaxed by the warm water; reactive capacity is diminished by its calming and sedative effect. The vaso-constrictors are depressed. The subsequent cooling of the water finds the sensory nerves unprepared and chilliness usually results, unless the patient be more robust than is the average neurasthenic.

It is unhappily a very prevalent error to regard the most agreeable bath as the most salutary. We do not so reason in the application of medicinal agents, of electricity, or of diet. And yet the application of water may be made agreeable by gradually accustoming the patient to lower temperatures, slowly reducing them every day or two, making the application brief at first and increasing the duration and pressure day by day. The prime essential, however, should always be borne in mind that *reaction is our aim*, that this cannot be evoked without some shock, that the more intense the latter the more effective the reaction; but the more brief it is, the less unpleasant. If the physician bear in mind that his object in treating such a

case is an increase of the quantity of blood circulating in the cutaneous vessels, an enhancement of the nutrition, a stimulus to the entire nervous system, he will endeavor to so order the technique, provided he has mastered its details, as to evoke this salutary reaction. A chlorotic girl, for example, should stand in a tub containing twelve inches of water at 100° to protect her against chilling of the feet. Water at 90° F. or lower, according to the assured reactive capacity of the patient, should be ready in a large basin or a small tub within reach. The mother or attendant squeezes a small crumpled up towel or two bath gloves out of this water and rubs the patient gently, occasionally pressing the water against the body, till the whole body is so treated. The rubbing should be done rapidly and chilling should be avoided. The patient is dried with a soft linen towel, which acts like blotting paper; then gentle friction is made with a Turkish towel. Where reactive capacity has been improved no friction should be made. Such a bath will prove refreshing and invigorating and prepare the patient for a more effective one without a severe shock. The temperature of the bath water should be reduced daily one or two degrees until 60° F. are reached; then larger quantities of water should be poured upon the body by squeezing a large sponge quickly over different parts. Later, pitchers or basins full may be poured over the body with some force; each change beginning with 90° and reducing daily one degree or more until 60° are reached. Thus day by day the reactive capacity may be elevated and tested, and no harm can ensue.

As the shock and reaction increase day by day, the patient will emerge from the treatment with a ruddy hue. The increased circulation will endure more and more every day, languor and loss of appetite will cease, and if the patient does not recover under this domestic treatment, douches of the same temperatures and with a pressure of twenty-five to thirty pounds, preceded or not by hot-air baths, will bring about a final restoration of health. "It goes without saying" that other hygienic agencies, the removal from unfavorable environment, properly regulated exercise and rest, enhance the value of hydrotherapy in all cases.

For the attainment of satisfactory and definite results, however, correct technique is paramount. This cannot be too often reiterated and impressed upon the profession. Acute cases like typhoid fever and pneumonia

are under constant observation of the physician, who may at once note the result of an improper hydriatic technique and modify it, or, as is more often the case, relinquish it altogether. In chronic cases much damage may be done before the physician discovers it, if the treatment be not in the hands of trained and intelligent attendants who are under medical supervision. Too often the details are left to laymen because physicians have not received instruction in the rationale and technique. The result is as Dr. Vogl, General stabsarzt of der Bavarian Army (*Münch. Med. Wochenschrift*, 27, 1896), says: "Physicians are themselves to blame if hydrotherapy is chiefly practiced by laymen, who know as little of the disease they are treating as they do of the effect of water, and thus damage not only the patients who confide in them, but also the cause of hydrotherapy."

During the past summer I visited in Germany and France twenty-five institutions in which hydrotherapy is practiced largely. I was astonished and chagrined to find among the number only four which had a stationary thermometer to indicate the temperature of douches, and only two which had gauges in use to indicate the pressure applied. How can these gentlemen control the technique with any degree of certainty?

It occurred to me that a mild and graduated hydrotherapy, such as is described above as in use in the Montefiore Home, would be capable of early adoption, and thus afford the patient great aid in improving his condition without the lapse of precious time.

To avoid shock and gradually educate the patient's reactive capacity has been demonstrated as a good rule of practice in my clinical observation. To enable me to accomplish this end with precision I have, without neglecting other hydriatic procedures, resorted chiefly to douches, with which I am able to grade the temperature, duration, and pressure.

For this purpose I have constructed an apparatus which has been used for several years in the Montefiore Home and the Hydriatic Institute in this city, in the German Hospital of Philadelphia, and in several other institutions. By this means it is in our power to exactly adapt the necessary shock and reaction to the patient's capacity and endurance.

Gentlemen: I hope to have clearly demonstrated:

1. That the therapeutic application of water demands at least as much care as the use of medicinal agents.

2. That owing to the flexibility of water as a remedial agent, greater demands are made upon the practitioner than in the use of medicines.

3. That the best results may be obtained only by following an exact technique in each case.

4. That the reason that different results are obtained by different physicians from the application of water may be found in the technical errors committed on account of an erroneous conception of the rationale of hydrotherapy.

I hope to have this evening aroused sufficient interest in hydrotherapy to induce you to acquaint yourself more intimately with its technique.

In the discussion which followed this paper Dr. I. Adler said that in the most modern medical view hydrotherapy plays an important rôle, and that, as Dr. Baruch had emphasized, the application of water is so lax that clinically and diagnostically much less is accomplished than would be otherwise. But this is not alone the fault of physicians, but perhaps as much of those who specially cultivate hydrotherapy. The latter seems to be based more on personal impressions than scientific data. We cannot accept water therefore on the same basis as our medicinal agents. As an example, the physiological action of strychnine upon the spinal cord is exactly known, but of water we cannot say this. There should be a knowledge of the physiological action of water ere we are asked to accept it as a scientific remedy.

Dr. Adler thought it was going too far to accept the baths as the only remedy for typhoid. The statistics cited by Dr. Baruch to prove that the mortality has been reduced to almost nothing are new to him. Dr. Adler has used the bath more in hospital than in private practice, where it is more difficult to apply. One may have very good results without baths, although the latter are one of the very best agents where the heart is feeble, delirium is intense, and somnolence occurs. But he could not accept Brand's rule, supported by Dr. Baruch, that 102° F. should be the signal for baths. Some patients become delirious at 100.5°; others may have 105° and not be delirious. Dr. Adler also confessed his confidence in small doses of antipyretics, which afford much relief, although he does not approve of their routine application for temperature reduction.

Dr. L. Weber said that he always used cold baths in typhoid in the absence of kidney

complications; he begins the treatment with a large dose of calomel to clean the intestinal tract and disinfect it. In private practice he has not often had an opportunity of applying the Brand method. There seems to be a silent but active opposition to it among the nurses. There is no doubt that Brand's method offers great advantages, and is specially adapted for enhancing the resisting capacity of the nervous system. Dr. Weber uses antipyretics in small doses for temperature reduction.

In neurasthenia Dr. Weber has seen much of hydrotherapy. It seemed to him, however, that many of these cases recover under any treatment.

Dr. A. Rose opposed Dr. Adler's views that hydrotherapy was not based upon sufficient scientific investigations and experiments. It would seem that the statements of quacks are more regarded than these scientific experiments. He referred to the pletysmograph of Winternitz, by which the passage of blood driven from one part of the body by cold baths was demonstrated in other parts. Dr. Rose referred to his experience in erysipelas and his observations with the permanent baths in obstinate rheumatism.

Dr. A. Seibert believed that the complaints made by hydrotherapists that their doctrines have not been generally accepted by the medical profession are to be charged to their own writings, in which they use many hyperboles. The Brand bath is not responsible for the reduction of mortality of typhoid fever during the past thirty years, but rather to the general improvement in the treatment of the disease. A large acquaintance with statistics enables him to say that many sins are committed by statistics. In his hospital practice Dr. Seibert uses the Brand method only on patients who are received in a somnolent condition. He prefers to reach the seat of the disease by cleaning and bathing the intestinal tract rather than to cool the skin and thus excite the nervous system.

Dr. Seibert regards as novel the claim that the early adoption of the Brand method is capable of affording absolute protection against complications. He refused bathing in pneumonia cases, and stated that an experience of nineteen years warrants him in proposing the doctrine that the patient's chances in pneumonia are better the less he sees of the physicians.

Dr. Talmey believes that one reason for the non-acceptance of hydrotherapy lies in the objections of the public; another reason

lies in the insistence of the hydrotherapists upon so many details, which no ordinary man is supposed to be capable of executing as well as they.

Dr. Baruch closed the discussion by regretting the brief time at his disposal. He insisted that much proof exists showing that the action of water is more rational and scientific than that of any other remedy. Very little is known of the action of strychnine in non-toxic doses. It may be administered for days, weeks and months without any subjective or objective evidence of its presence in the pulse, blood-pressure, respiration, etc. Our knowledge of its effects in disease is almost entirely derived from non-toxic doses. Of water we know much more. It may be dosed with precision afforded by a latitude of seventy degrees of temperature ( $35^{\circ}$  to  $110^{\circ}$ ), a duration of a second to many minutes, a pressure of from one to forty pounds. We also have various methods of applying it—packs, baths, douches, etc.—by which its effects may be graded. A few days ago he subjected an attendant in the Hydriatric Institute to a tub-bath of  $80^{\circ}$  F. for ten minutes. The effect was at once pronounced upon the pulse as ascertained by the finger and the sphygmograph; the blood count showed an increase of 700,000 red cells and 1500 white cells in blood drawn from the lobe of the left ear. Is any analogous experiment with non-toxic doses of strychnine on record? So far from there being a lack of scientific experiments of the action of water, these abound within the past five years, having been made in Zuntz's and other laboratories by Breitenstein, Loewy, Knoepfelmacher, and others. Thayer, of Johns Hopkins Hospital, has confirmed the statements of Winternitz and Rovighi that the red and white blood-cells increase after cold water applications; the sphygmomanometer has demonstrated that the force of the heart is increased by them; Vinaj has shown with the ergograph of Mosso with exactness how the muscular power is enhanced by them. Roque and Weil have shown that the urotoxic coefficient of the urine in typhoid fever is increased many fold after the use of the cold bath.

That early cold baths prevent complications has been demonstrated as has no fact in medicine before. Dr. A. Vogl, Medical Director of the Bavarian Army, has collected from the records of the Military Hospital of Munich all the cases of typhoid fever which were treated during a period of forty years in this hospital. He gives the type of the

disease each year, the symptoms, the treatment, mortality, and results of autopsy. Since the strict bath treatment was adopted he found the mortality reduced to 2.7 per cent., while under other methods of treatment it had ranged from fifteen to thirty per cent. This proves that the result is not due to a change of type in the disease which the records show to have varied from year to year during this long period, but that it is entirely the result of the bath treatment which prevented lethal complications. Although the Brand method must be applied before the fifth day, every fever patient may be bathed with advantage. Dr. Baruch stated that he invariably uses it in private practice, that he declines to treat the patient otherwise, and that he has been dismissed from a case but once for this reason.

The most superficial study would demonstrate that water produces a thermic and mechanical excitation of the cutaneous nerve-endings which operates upon motor and sensory tracts as a reflex upon the circulation, respiration, and secretions. These demonstrations are so abundant in literature that Dr. Baruch regarded it as an act of supererogation to reiterate them here.

That a woman may be aroused from syncope by the simple sprinkling of cold water upon the face is known to almost every lay person, and the scientific explanation of this process is recognized by every tyro in medicine to be a powerful irritation by cold, which is conveyed from the cutaneous nerves to the central nervous system and thence by reflex to the vagus. This seems perhaps too simple; rabbits and guinea-pigs are not required for the "scientific" explanation of this powerful effect. If such sacrifices are demanded, however, to establish water as a scientific remedy, the classical experiment of Maximilian Schüller upon trephined rabbits may be offered. Schüller exposed the vessels of the pia, and placing the rabbits in water at different temperatures observed the effects of these applications on the animals; he demonstrated more clearly than has ever been done in the study of any medicinal agent the effect of these water applications. He showed conclusively that the latter called into action a hydrostatic effect which makes water a powerful agent for influencing the circulation of blood in an animal. Besides, Winternitz and others have demonstrated in the most exact manner by laboratory experiments that the corpuscular elements of the blood are subjected to such decided changes by water

applications that no medicinal agent is capable of approaching these effects.

A very fruitful but sadly neglected field lies here before the practical physician who does not meet hydrotherapy with a shrug of his shoulders.

To Dr. Talmey's insinuation that hydrotherapeutists are so insistent upon minutiae that "it is difficult for an ordinary mortal to follow their directions," he would reply that modern hydrotherapeutists are constantly laboring to make hydrotherapy the common property of physicians. He would only protest against the tendency of physicians to leave the water treatment of chronic cases to bath attendants, or other nurses who claim to know all about it, but really do not know anything but the mechanical part. Does not every physician who orders a cold bath in typhoid fever give the nurse directions regarding temperature, friction, drying, duration, etc.? Why then should physicians leave such important details to a nurse when ordering a wet pack, douche, etc., for a chronic case? Would it not be far easier for physicians to consult some work on this subject and use their own judgment in ordering the necessary temperature, duration, etc.? It is just as absurd to leave these important details to self-important bath nurses as it is to leave the doses, etc., of a medicine to the druggist to prescribe and administer. Indeed the latter would be safer, because the druggist is at least an educated man. As Vogl has said, leaving the treatment in the hands of lay people has brought hydrotherapy into disrepute. He warns the profession against this error.

With regard to clinical observations this discussion again makes evident the fact that many physicians have occupied themselves with hydrotherapy insufficiently. In reply to Dr. Seibert's statement that the Brand method is not entitled to the credit of reducing the mortality of typhoid fever, Dr. Baruch referred to Dr. Vogl's statistics for positive evidence to the contrary. Moreover Prof. C. Gerhardt, of Berlin, said in his recent opening lecture before his class at the University: "The mortality of typhoid fever has been reduced by the Brand cold-water treatment to one-fourth."

That Osler formerly regarded heart feebleness as a contraindication to cold bathing does not disprove the fact that he is now its warm defender, since he applies its technique correctly. In the first edition of his book on Practice he omitted the frictions from the

bath technique; this error has been corrected in the later editions.

That the hydrotherapists "resort to many hyperboles in their writings and lectures" may, as Dr. Seibert states, be true. But the most eminent physicians also resort to "hyperboles" when they have mastered hydrotherapy and applied it correctly. This he proceeded to demonstrate.

Prof. F. A. Hoffman, of Leipsic ("Lectures on General Therapeutics," 1892), says: "Herein lies the unexcelled value of cold water in therapeutics; we invigorate the nervous system and thereby enhance the cardiac capacity" (page 88). "I am convinced that in time all chronic organic diseases will come into the domain of the bath treatment" (page 392). "Cold affusions have justly been elevated to become the chief remedy in catarrhal pneumonias of children" (page 130).

Prof. Wilhelm Erb, of Heidelberg, writes in Ziemssen's Cyclopaedia: "Among the most effective and powerful agents in our branch are cold and cool baths and cold-water treatment. Its results in all possible chronic nerve troubles are extraordinarily favorable. We have few remedies which exert a similar powerful influence upon the nervous system."

Professor Kussmaul, of Strasburg, writes: "There is no doubt that the belief in the prescription is waning among educated people, and the confidence in dietetic remedies and the remedial value of water is in the ascendant. Water especially has won for itself a constantly growing confidence as a remedy, because unlike any other it may be applied by reason of varied temperature and methods to the most varied curative purposes."

Semmola, the recently deceased professor of therapeutics at the Naples University, whose work has been translated into German and supplied with a laudatory preface by Nothnagel, writes: "Hydrotherapy excites cutaneous activity and with it all functions affecting tissue change and organic purification, so that frequently real marvels of restoration in severe and desperate cases have been obtained by it."

From Prof. V. Leyden's Berlin Clinic, Klemperer reports (Publications of the Hufeland Society, 1896) that "in hydrotherapeutic effects we observe a quite extraordinary and incomparable stimulation of the nervous system which is exerted upon the various organs. . . . In our clinic we regard hydrotherapy as quite an essential factor in bronchial asthma. . . . Much greater is its rôle in nervous diseases of the heart—but

it plays quite a powerful rôle also in organic heart diseases. . . . As much more effective do I regard these hydrotherapeutic influences in stomach and intestinal diseases. Here hydrotherapy remains the most powerful factor. . . . I may say briefly that we have treated the most varied pathological conditions of the gastro-intestinal tract—chronic constipation, diarrhea, enteralgia—hydrotherapeutically with great benefit."

Dr. Baruch said that he might quote many "hyperboles" from the writings and lectures of the most eminent clinical teachers. These gentlemen have not been deterred by the "hyperboles of the hydrotherapists;" they have investigated the subject, as have Delafield, Peabody, Osler and Draper in our own country, and have become its advocates.

One thing Dr. Baruch desired especially to emphasize, namely, that in his article, as in all his writings, he has never lauded water as a universal remedy. Dr. Baruch claimed that his observations in hydrotherapy were gathered in the capacity of family and hospital physician, in which respect he stands alone. As a practitioner of thirty-five years Dr. Baruch did not feel prepared to throw aside calomel, salicylic acid, morphine, quinine, and other approved remedies. Despite this fact he felt compelled to acknowledge that water had served him well in the most desperate chronic cases after other most approved remedies had failed in his own hands as well as in the hands of colleagues. For this reason he would say with Pindar, *αριον μὲν ὕδωρ*. And herein he felt himself sustained by the most eminent clinicians of the present time, whose opinions he desired to impress upon his colleagues.

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#### SOME CASES OF MASTOIDITIS, WITH REMARKS.

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The following cases of mastoiditis occurred almost in succession, and exemplify the polymorphous character of mastoid inflammation and the difficulty of avoiding the lateral sinus which, though not such a bugbear, nevertheless makes the aurist careful in the use of the chisel. No one desires to strike into the sinus involuntarily, although such an error would be condoned by any one who has done a sufficient number of "mastoids" and has learned at last that he does not know the position of the lateral sinus, except vaguely.

Dr. Myles, who has made many mastoid openings on the cadaver, points out the fact that the approach to the sinus is shown by the increasing density of the bone and the bluish color. In life this does not apply. Very often one is in doubt as to whether he has uncovered the sinus or a mastoid cell, and uses the curette gingerly until he is certain. The sinus appears like a bluish-white bubble, which is more resilient and harder to the probe than a cell. Even when working near or in the triangle which embraces the antrum (I refer to that made by tangent lines to the upper and posterior walls of the canal) one sometimes exposes the sinus, as is shown in one of the following cases where the bone between canal and sinus was a prismoid in shape. The sinus was uncovered first and the antrum was found subsequently beneath the sinus in the depths of the prismoidal bone. Then, again, the mastoid will be laid bare and the bone chiseled away for a considerable distance posteriorly, without encountering the sinus. This seems to be more so on the left side.

These cases further show that it is sometimes a difficult matter to tell when to operate. A few days' treatment with the ice-coil will sometimes disguise and dull the symptoms of mastoiditis. When finally operation is decided on, the bone will be found in such a condition that one must conclude that the operation should have been done earlier. Again cases seem most urgent, yet when opened the mastoid shows no pus. Bad cases sometimes show constitutional symptoms, sometimes not. A woman had grippal earache, profuse otorrhea, mastoid tenderness with some little edema, and slight temperature. The coil took away most of the tenderness, but the edema and low temperature still remained. The canal did not bulge to any extent.

Operation showed a perforation in the tip. The mastoid was a shell and the sinus was easily uncovered for an inch. There was little if any mastoid left, and yet she laughingly objected to the operation five minutes before.

The most constant symptoms, in cases demanding operation, are a temperature, a profuse or thick discharge which the ice-coil does not stop, a sagging canal posteriorly near the drum, tenderness which may not always be pronounced, although it exists in almost every case and is generally elicited on deep pressure over the site of the antrum or tip.

In children it is sometimes very hard to decide when to operate. Tenderness is not always manifested by the little patient. The discharge may be stopped. Inspection of both ears from behind may show the diseased one more prominent than the healthy. The baby whose case is given below evidenced very few signs of trouble except a slight prominence of the ear and the thick discharge. It was cheerful and nursed well up to the day of the operation. Then it could not be induced to smile, was quiet and listless, and for the first time refused to take much nourishment. In children as a rule it is not wise to wait too long. The bones are so soft that they break down more easily and the pus finds accommodation in many more directions than in adults. In regard to preliminary treatment of the otorrhea, two of the cases were treated from the incipency with antiseptic tamponage, which was generally renewed once daily. The discharge was profuse and thick, and the gauze did not drain well. The mastoiditis developed promptly enough, and the cases seemed to be harmed more than benefited by the tampons. While this treatment acts admirably in many cases it has its limitations.

Great care must be exercised in watching the case. Each case is a law for itself, and no one can tell how long it is necessary to leave the dressing undisturbed. If left too long it proves to be irritating and blocks drainage. In cases such as those mentioned it is far better to rely on frequent antiseptic douches, with light dressing of gauze. Where the operation is thorough the after-treatment is generally uneventful. Cases sometimes develop a high traumatic fever which makes one a little uneasy, but the ultimate results are very good. The wounds do well without much douching after the operation unless pus be present.

CASE I.—Schoolgirl, seventeen years old, had a cold in the head since Christmas, 1896. On January 19 had nocturnal earache, which lasted for the next two days. She came to the Eye and Ear Infirmary, and after bichloride douche I did a paracentesis on the bulging left drum. The discharge was seropus. Gauze drain was introduced, and patient did not return for two days. She stated that the earache had not abated. On the day previous she had had a chill. The discharge had become profuse, and the gauze was thoroughly saturated. She had mastoiditis well developed. Her temperature was 101.4°. The ice-coil was applied, and pa-

tient put to bed. On January 23 pain had diminished. The canal was bulging slightly. Operation was done on the 25th. Mastoid was opened and carious bone removed for a considerable extent posteriorly; an unusual number of cells were found and scraped. This accounted for the tenderness extending far back. The wound was a very large one. Her temperature on the 26th was 102° and fluctuated around that until the 29th, when it dropped to 99°. She was in bed eleven days. Her temperature, associated with some tenderness along the sterno-mastoid muscle, occasioned some uneasiness, but her general condition was good. In two weeks she left the hospital. On March 17 the wound was almost healed. Hearing distances with the watch were on the left side four feet and on the right six feet.

The principal points in this case are the high traumatic fever after the operation, the extent of bone operated without encountering sinus (thus seeming to prove the statement that the sinus goes deeper into the bone on the right than on the left side), and the dangerous part played by the gauze left in too long.

CASE II.—Julius Leboist, five months old. The child was treated in the clinic for two weeks by means of antiseptic tamponage renewed daily. The discharge did not stop. Paracentesis was done at the end of the first week to promote drainage. The pus was more profuse after the cutting. On account of the apparently defective drainage, and the slight, almost inappreciable, prominence of the pinna, the child was taken into the hospital and the coil applied on February 4. The temperature was 99°. The discharge did not stop under the use of the coil; it was thick and tenacious, and the canal was stenosed. The mastoid showed no more edema or redness, and the temperature ranged between 99° and 100°. It was hard to decide as to whether the child needed a mastoid opening or not. The infant nursed well, smiled, and continued on so until the 10th, when it was noticed that he was quiet all day and would take no nourishment. The local symptoms remained the same, with slight edema above the pinna. The operation was then performed. The sinus was exposed for three-quarters of an inch. The necrosis extended to the squamous portion, of which a piece the size of a quarter of a dollar was removed. The dura was found rough in a small area. On February 23 the baby was discharged. The recovery was uneventful, his temperature only once being as high as 101°.

CASE III.—Patient had otorrhea for two years. A week previous to entering hospital he had earache. He used home remedies and packed the ear with cotton. Mastoiditis developed. On February 23 he was admitted and the coil put on. His temperature was 101° F.; this soon dropped to 99°. On the 26th the tenderness still existed, with very slight bulging of the posterior wall, but no edema. The mastoid was opened and the sinus was found close to the canal separated by a ridge of bone. The sinus was explored with negative result. No antrum was discovered. On the 28th of February the ridge of bone separating the canal from the sinus was chiseled away, and the antrum was found beneath the sinus in a prismoidal mass of bone. His after history was uneventful. His temperature ranged between 98° and 99°. March 20 he was entirely well.

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#### COUGH AND ITS TREATMENT.\*

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Cough is a reflex movement. It depends on irritation of the sensory fibres of the pneumogastric nerves, the impulse from which, being transmitted to the ganglia or to the root of the latter, is referred back to the lungs through the motor filaments of the same nerve, and there manifests itself in the complex phenomena of expulsive contraction which we know as cough. In order to comprehend the varied and manifold conditions under which cough may arise it is important to briefly study the origin, course and distribution of this nerve. It may be described as arising from two nuclei, one of which is situated in the lower half of the floor of the fourth ventricle, and the other in the oblongata near the olivary body. In the jugular foramen, through which it emerges from the skull, is the ganglion of the root of the pneumogastric, which in all probability is the homologue of the ganglion on the posterior root of the spinal nerves (see figure below). From this ganglion is given off the *auricular* branch which supplies the external ear and the *membrana tympani*. Only a short distance below this point is another enlargement, about an inch long, which is known as the ganglion of the trunk. Here the pneumo-

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\* Lecture delivered at the Philadelphia Polyclinic.

gastric anastomoses freely with the spinal accessory and receives filaments from the sympathetic and the hypoglossal, and from the upper part of this ganglion the *pharyngeal nerves* are given off. The *superior laryngeal nerve*, which supplies sensation to the mucous membrane of the *larynx*, *epiglottis*, and base of the tongue, also arises from this ganglion. The next branch which is given off is the *recurrent*, or *inferior laryngeal*, which is the motor nerve of all the intrinsic muscles of the larynx except the cricothyroid, which receives its innervation from the superior laryngeal nerve. Before the pneumogastrics enter the

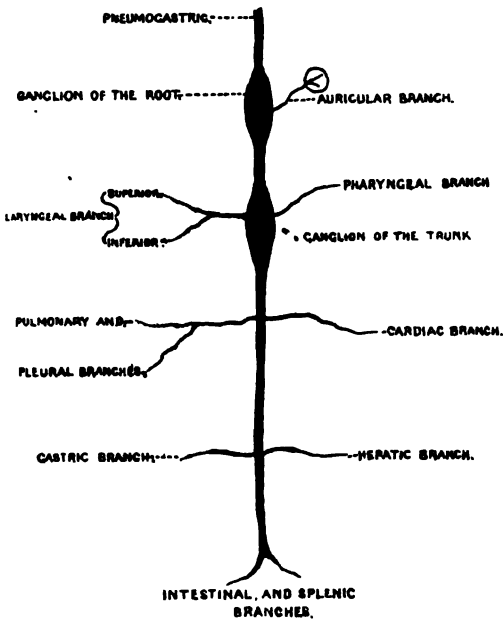


Diagram of pneumogastric nerve and its branches.

lungs they form the *anterior* and *posterior pulmonary plexuses* in connection with the sympathetic, and from thence their fibers run along the *bronchial tubes*, the pulmonary arteries, and throughout the lung tissue. On the outer surface of the bronchial tubes, as well as in the textures of the lung, are found a large number of small ganglia in connection with these nerve fibers, and in many instances the nerve filaments of these seem to terminate in the *mucous membrane of the bronchi*. The nerves of the *pleural coverings* are also derived from the pulmonary plexuses, and those fibers which are distributed to the pulmonary pleura also have ganglia attached to them. Additionally branches of the pneumogastric nerves are distributed to the *heart*, *stomach*, *liver*, *intestines*, *spleen*, *kidneys*, and *suprarenal capsules*. From this it follows that irritation coming from the ear, larynx, trachea, bronchi,

lungs, pleura, heart, pharynx, stomach, liver, intestines, or from any part of its trunk or origin, is liable to produce and excite cough.

Not all these regions are equally sensitive in this respect. Thus Kierner, Koths and others have shown that in the respiratory tract the larynx possesses the greatest impressibility, while the trachea and bronchial bifurcation are less sensitive, the bronchial walls still less so, while the alveoli have very little sensibility. The pulmonary pleural lining is especially sensitive and very liable to cause cough.

I will now consider the different kinds of cough:

**Ear Cough.**—This cough is excited by an irritation of the auricular branch of the pneumogastric nerve. Arnold cites the case of a girl who had persistent cough and excessive expectoration, with extreme emaciation. It appeared that she had many months previously introduced a bean into the meatus of each ear, where they were discovered on examination. After the removal of these foreign bodies the cough ceased and the patient recovered her health. Accretion of cerumen in the ear is an occasional cause of cough, which will abate when the offending material is cleaned out. Aurists also know that the introduction of a speculum into the ear, or of a sound or probe into its cavity, frequently causes cough. A draught of cold air striking the meatus or the drum of the ear is followed by coughs and colds in some people independent of any catarrhal affection of the middle ear. This has led to the custom of plugging the meatus with cotton or wool, which shields and protects the oversensitive ear-surface of these people.

**Laryngeal Cough.**—Laryngeal cough depends on a supersensitive or inflamed larynx, and is accompanied by hoarseness, pricking or burning, and by a constant desire to clear the throat. The cough is dry and brassy, with very little expectoration, while on the other hand it may be moist with an abundant secretion. Its causes are principally a strain of the voice, especially in the open air; bad management of breathing in public speaking; the excessive use of alcohol and tobacco; the inhalation of dry hot air, dust, gases, etc. In the treatment of this form of cough the exciting cause must be removed. The inhalation of watery vapor impregnated with the compound tincture of benzoin, or the inhalation of the fumes of gum camphor, or of four or five drops of chloroform from a handkerchief, or the spraying of the larynx with a solution



of cocaine hydrochlorate, thirty to forty grains to an ounce of water, are very useful methods for allaying the irritability of the larynx. Lozenges containing cocaine hydrochlorate, sugar, licorice powder and powdered acacia, and allowed to dissolve slowly in the mouth, also have a soothing effect. At the same time the general health must not be overlooked. Strychnine, quinine, iron, the hypophosphites and cod-liver oil are exceedingly beneficial in this respect.

**Bronchial Cough.**—This is the cough which comes from catarrh of the bronchial mucous membrane, and one of its immediate offending causes is a collection of catarrhal material on the surface of the bronchi. The explosive movement of the chest muscles which we know as cough seeks to remove this impediment. Most patients who suffer from this kind of cough locate its source in the upper sternal region directly over the seat of the large bifurcation. This is probably due to the fact that so long as the bronchial epithelium is intact, the movement of its cilia tends to transport all the catarrhal material from the smaller into the larger tubes and thus to finally deposit it in the region to which the feelings of the patients refer it. Many a patient of this sort, not understanding the mechanism of his trouble, frequently expresses his belief that if he only could get rid of the worry under his breast bone he would be entirely well. Cough of this kind is always accompanied by a copious yellow expectoration which is generally most abundant in the morning on account of an accumulation of the latter during the previous night. There is, however, another bronchitis which is not associated with either a copious or a yellow expectoration, but with one that is tough, tenacious, grayish, and sparse. This is the bronchitis which has no direct connection with catarrh of the bronchial tubes, but depends on stasis or on hyperemia of the lungs due to cardiac disease, generally of a mitral nature, and is very liable to be accompanied by blood-spitting, a feature which is rarely present in the idiopathic form of bronchitis.

A distinction between these two types of bronchitis is of great practical value when we come to treat this disease. If the case belongs to the former type, and is not acute, then our chief aim is to build up the constitution, and secondarily the lungs; for that which enhances the general health will also improve the local condition. Among the agents which accomplish this purpose strychnine—and strychnine in large and progressive

doses—stands first. Begin with one-thirtieth of a grain four times a day in the adult and gradually increase the dose until you reach the line of toleration in the action of the drug. In most cases this does not show itself until one-sixteenth or one-twelfth of a grain is given four times daily, and sometimes as much as one-fifth or one-fourth of a grain may be given four times a day without any untoward results. If the toxic action of the drug begins to manifest itself then a smaller dose must be resorted to, which is to be again gradually increased until the line of toleration is once again reached. Then the dose is again reduced and again increased. The addition of the syrup of the hypophosphites is useful; so is cod-liver oil if it is well borne by the patient. For a simple cough mixture give the following combination:

- R Tincture benzoin compound, f ʒss;  
Fluid extract euphorbia pilulifera, f ʒss;  
Tincture capsicum, f ʒ iij;  
Syrup senega, f ʒ j;  
Syrup hydriodic acid, q. s. f ʒ iv.

M. Sig.: One teaspoonful in water every three or four hours.

A nutritious dietary is of course also essential. There is frequently present a strong gouty or rheumatic element in some cases of bronchitis. This must always be inquired into, and if this is done evidence of it will be found lurking in some parts of the body when from outside appearances it is wholly unsuspected. If this is present then the salicylates will do efficient work. It is my custom to give the sodium salicylate in the following combination:

- R Sodium salicylate, ʒ ij;  
Potassium acetate, ʒ j;  
Potassium carbonate, ʒ ss;  
Wine colchicum root, f ʒ iiss;  
Gaultheria water, q. s. f ʒ iv.

M. Sig.: One teaspoonful four times a day.

In bronchitis depending on a cardiac lesion the medication must of course be addressed primarily to the heart. Good results in such cases are obtained from the following:

- R Strychnine sulphate, gr. j;  
Quinine sulphate,  
Acetanilid,  
Caffeine citrate, of each gr. xxxx;  
Iron sulphate, gr. xv;  
Powdered digitalis, gr. x;  
Arsenious acid, gr. ʒ.

M. Make capsules No. xxxii. Take one capsule four times a day.

If there is present any rheumatic element in such cases add forty grains of sodium salicylate to the above prescription; or give the

above mentioned salicylate mixture in conjunction.

*Pleuritic Cough.*—Pleurisy, as is well known, gives rise to a persistent cough with little or no expectoration; and pleurisy being oftener due to rheumatism than not, it follows that the remedies which do good in the latter also prove efficient in the former affection; hence the salicylate of soda mixture recommended above in rheumatic or gouty bronchitis will also be found serviceable here.

*Asthmatic Cough.*—The cough of asthma is always accompanied by an abundant expectoration after the attack of asthma has ceased. During the attack the cough is dry, short, and hacking, and the patient suffering greatly for the want of breath. To shorten the asthmatic grip break a bead of amyl nitrite in a handkerchief and allow the patient to inhale it, or give two drops of a one-per-cent. solution of nitroglycerin in a teaspoonful of water, or administer hypodermically one-twentieth of a grain each of strychnine and morphine. One-twentieth of a grain of strychnine in a teaspoonful each of syrup of hypophosphites and hydriodic acid, four times a day, the strychnine being gradually increased, gives very good results. Asthma is very frequently mixed up with rheumatism, and hence the salicylates and the lithates are useful in its treatment. Lithia tablets, such as are now manufactured by many druggists, dissolved in a glassful of water and taken three or four times a day are frequently helpful. When the attacks are prolonged or run into each other they become very depressing and exhausting, and then the patient must be placed in bed and kept there until the fury of the affection is abated and until the former strength is recovered.

*Phthisical Cough.*—The cough of phthisis varies with the stage of the disease. In its incipiency the cough may be very slight, and indeed be absent in some cases; but in others it is one of the earliest and most constant symptoms, although there may be very little or no expectoration. In the advanced stage of the disease cough is more or less persistent, and so long as the catarrhal element predominates it is accompanied by an abundant yellow expectoration. After the formation of cavities the expectoration is generally of a grayish color and of tough, fibrous consistency.

We have already seen that cough is a reflex nervous movement, and hence it necessarily follows from a fundamental physiological law that the degree and amount of cough in any

case correspond with the irritability or incompressibility of the nerve-supply of the lungs. This applies more forcibly, perhaps, to the cough of phthisis than to that of any other form of lung disease, and explains why the cough of this affection not only varies very much in different individuals, but why it varies in the same individual under different bodily positions. In the very nervous phthisical individual the cough may be one of the most prominent and distressing symptoms from the beginning to the termination of the disease, while in the insane for instance, in whom the sensibility of the nervous system is in a great measure subdued and obtunded, phthisis goes through its various stages without any cough, and often very little expectoration. Then again, as a rule, the cough is easier when such patients sit or stand than when they lie down. This is probably due to the fact that the lying position allows more blood to gravitate to the apices, which are oftenest involved, and the increased fullness of blood thus induces greater irritability in the nerve filaments of these parts. It is also well known that patients can lie much easier on the healthy side of the body than they can on the side which is affected. This is perhaps also explainable on the score of the principle just referred to. Sleep is an obtunder of nervous irritability, hence the cough of phthisical patients, after they have once fallen asleep, is comparatively quiet during the night, but is always worse in the morning on account of an accumulation of material in the bronchial tubes during the sleeping hours.

It is clear, therefore, that the cough of phthisis is largely a question of nerve irritability, and that this element must be kept prominently before our minds in the treatment of this symptom. What then are the remedies for its abatement and relief? I believe that strychnine in progressively large doses is one of the best of these; it brings the tone of the nervous system within the range of health better than anything else. If the state of the nervous system is too irritable or unstable, it increases its stability and acts as a sedative; and if this is depressed below the normal level, it increases its tonicity and restores its elasticity.

Cayenne pepper ranks very high as a diffusible stimulant in the cough of phthisis. When phthisis follows the excessive use of alcohol it is of especial value, but under these circumstances it must be given in very large doses diluted with water. In ordinary cases

of cough the dose of the tincture may vary from two to fifteen drops four times a day, while in that of alcoholic phthisis I have seen doses from half to a teaspoonful, given at the same intervals, do a great deal of good. The powder may be used in doses of from one-eighth to one grain four times a day.

The liquid extract of *euphorbia pilulifera* and the compound tincture of benzoin in ten-drop doses with a drop or two of chloroform may be given in combination with the tincture of capsicum. Codeine at bedtime in doses of from a quarter to half a grain is sometimes required. Inhalation of a few drops of chloroform from a handkerchief, or of the fumes of gum camphor confined under a glass funnel, tend to quiet cough. The administration of a suppository at bedtime, consisting of from seven to ten grains of powdered asafetida, is very quieting. Morphine should not as a rule be resorted to until the last stage of the disease.

In cavities, bronchiectasis, or bronchorrhea, carbolic acid or creosote may be inhaled through a respirator with benefit. The cough which persists in the morning until the cavity is cleared out may be very much facilitated by teaching the patient to bend his head as low as possible, just as if he were in the act of tying his shoes, or going on his hands and knees with the head lower than the buttocks. These positions give the law of gravity a chance in expelling the offensive cavity contents.

Cough may be excited by congestion or inflammation of the pharyngeal mucous membrane, and by elongation of the uvula to such a degree that it touches the base of the tongue. Astringent gargles of tannic acid, sugar of lead, or the spraying of the pharynx with Dobell's solution, or with a weak solution of cocaine, or excision of the uvula, are the local measures which must be resorted to in such cases. At the same time it is also important to look after the general health of the patient. On the other hand cough may come from dyspepsia, from intestinal indigestion, from constipation, from disease of the liver, from gall-stones, from worms in children, etc. In such cases attention must be directed to the organ whose functions are disordered.

*Cough from Aneurism.*—There exists in nearly all cases of aneurism of the aortic arch a cough which is dependent on pressure of the aneurismal tumor on the recurrent laryngeal or pneumogastric nerves. This is especially the case when the tumor involves the

transverse or descending portion of the arch of the aorta, for the left recurrent laryngeal nerve winds around the arch from the front backwards, while the corresponding nerve on the right side does not. Aneurismal pressure on either of these nerves produces a cough which is loud, short, and croupy, often metallic in character, and associated with a high-pitched voice, and not accompanied by much or any expectoration in the beginning. A cough of this kind in the adult is very characteristic of aneurism, and whenever found it should lead to further investigation. The degree of relief which can be brought to this cough depends on the degree of control we have over the aneurism, which is often slight enough. I have, however, found temporary relief from the laryngeal irritation by the administration of half a drop of Fowler's solution with five grains of potassium iodide every four hours.

*Cough from Pressure on Vagus.*—There is no doubt that cough may be induced by pressure on the vagus other than that which is exercised by aneurisms. A cough of this kind may follow measles, diphtheria, bronchitis, pleuritis, etc.; diseases which lead to secondary enlargement of the bronchial or cervical glands, and a consequent compression of the vagi by these; or to a thickening of the pleural membrane which impinges on the vagus and embarrasses its function. Dr. James F. Goodhart relates the following very interesting case of this kind (*British Medical Journal*, 1879, vol. i, p. 542): "A child eight years old had a severe paroxysmal cough. Parents thought the disease asthma. The child would suddenly start up in bed; his face blue; his eyes staring; all the respiratory muscles in violent action—a picture so terrible that I shall never forget it. He would have five or six of these attacks in a day, and in the meantime some distress of breathing would continue. He became comatose and death supervened. The autopsy showed recent double pleurisy, and bronchopneumonia at both bases. No tubercle. In the right mediastinum there was one greatly enlarged bronchial gland, which had caseated and suppurated in its centre. It was adherent to but did not press on the trachea; the right vagus was firmly adherent to it and surrounded by dense fibrous tissue to such an extent that it was impossible to isolate it even by cutting.

*Cough from Fatigue.*—There is a cough which may be called the "cough of fatigue." Many persons without being subject to any

special disease of the respiratory apparatus, and especially those who possess a family tendency to phthisis, cough when they are tired out by physical or mental work, or when depressed by incidental diseases like colds, headaches, injuries, etc., or by loss of appetite, worry, or by excesses of any kind. Not only is this true of persons who are comparatively well, but those who suffer from respiratory diseases, particularly the phthisical, always cough more when they are fatigued or exhausted from any cause. A cough of this character is in all probability due to excessive waste of nerve force which is reflected on the lungs—the weakest and most vulnerable organs in the body in such individuals—and for its relief the most effective remedies are not physical exercise and outside air, but rest in bed, nutritious food, strychnine, hypophosphites, quinine, and cod-liver oil.

In conclusion I wish to say that you may feel surprised at my failure to recommend the administration of opiates and expectorants more extensively in the treatment of cough, and hence a word or two of explanation may be in order. I believe in the long run it will be found that opiates and expectorants, if given for more than temporary purposes, will nauseate and derange the appetite and disturb the intestinal secretions, and in this way interfere with one of the chief aims of treatment—viz., the building up of the body. It is my purpose, therefore, to treat cough on the restorative plan—rather by elevating than by depressing the functions of the body—and it is my conviction that the best ends are always secured by this method of treatment, except in extreme cases in which opiates must be resorted to.

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*THE CLINICAL VALUE OF THE CULTURE  
PRODUCTS OF THE BACILLUS OF  
TUBERCULOSIS.\**

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In considering this subject we may perhaps best do so by finding answers to the following questions:

1. Have substances obtained from the matured culture of the bacillus of tuberculosis an antagonistic influence upon its life and growth, and can they be distinguished,

chemically or physiologically, from similar substances obtained from the culture fluid upon which no such growth has taken place?

2. If such substances have a therapeutic value, what may we expect to accomplish with them, and what would be their limitations?

3. What available data and experience justify us in the belief that our conclusions as to their therapeutic value are correct?

A study of the evidence which I have gathered in my clinical and laboratory experience, and of the evidence adduced by others in available literature extending over a period of over six years, confirms me in my belief that the first question must be answered in the affirmative.

The details of experiments with the artificial culture of the tubercle bacillus upon bouillon and its subsequent behavior seem to confirm my position in regard to the first question.

When a culture of the tubercle bacillus is made with either an alkaline, neutral, or slightly acid reaction of the nutrient fluid, various degrees of growth of the bacillus take place; under ordinary circumstances the growth is most prolific upon the moderately alkaline fluid, but in subsequent generations the bacillus appears to accommodate and adapt itself to slight variations in the reaction of the media, so that we can obtain a good growth even if the culture fluid is primarily of an acid reaction; but in all such cultures a final limit is reached when no further growth takes place.

If we examine the reaction of the culture fluid upon which the germs appear to have reached the limit of growth, we find either that the primary alkalinity has been diminished, or that the primary neutral solution has become slightly acid, or having started with an acid media, that it has become more acid still; but we find further, that the addition of alkali to the now neutral or acid media is frequently followed by slight renewed growth, while the culture, primarily alkaline, and still alkaline when growth has ceased, does not show further growth and development of the germ if more alkali is added.

No matter how we may originally have started, the growth reaches a limit, and no addition of alkali gives any further aid.

If, however, we add new fluid to such full-grown alkaline cultures, renewed growth and development appear in proportion to the amount added. This would go to show that

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\*Read before the American Climatological Association, at Washington, D. C., May 6, 1897.

the tubercle bacillus naturally grows best upon alkaline media, that an acid is formed during its growth, that the production of the acid checks the growth, but that it is otherwise limited, since the addition of alkali to neutral or acid cultures is effective only for a time, and the growth finally ceases in media primarily and continuously alkaline, the same as in media primarily neutral or acid and subsequently kept continuously alkaline.

The explanation for this could be that the nutrient material contained in the culture fluid has become used up and has been exhausted by the germs, or that something new and different has been formed by the germs, or that other changes have taken place in the fluid during the growth and multiplication of the germs which are inimical to their further life and multiplication.

If we examine a healthy and rapidly growing culture we find the tubercle bacillus as a rule to be well formed and stained, and the condition of which we speak as "degeneration" is not well marked, certainly not predominant.

If, on the other hand, we examine the germs of the ripe, matured culture, we find the degeneration forms not only to predominate, but note only occasionally well-formed bacilli—thus the rapidly growing cultures and the matured cultures differ in that the former contains mostly perfect forms, while the latter contains mostly degeneration forms.

If we transplant from a culture in which degeneration of the germs has obtained its highest degree, we find that for a long period of time the new culture shows but very slight growth, and in some instances in my experiments no growth was apparent after four months; while with transplantations from a rapidly growing culture, in which few degeneration forms are present, the new culture grows rapidly and vigorously, very often maturing in from six weeks to two months.

If we use the bacilli from such cultures for infection of the guinea-pig, the minimum for successful infection requires to be greater from the ripe than from the growing culture in proportion to the degree of degeneration of the germs; and we also find that animals infected with bacilli showing extreme degeneration live much longer and the resulting disease is much slower in its development and course than is the case when bacilli are used coming from a culture in which degeneration was not marked.

In further examining this fluid upon which a culture has reached its full growth and limi-

tation, we find plenty of the original nutrient material present, and that other germs grow upon it luxuriantly; but beyond this we cannot with certainty demonstrate the presence of any recognizable change (unless it is a decrease in alkalinity) or the formation of any new substance.

If we now take the bodies of tubercle bacilli and extract them with glycerin, we obtain an extractive substance resembling in its physiological effects that of tuberculin, but if we first extract the bacilli with ether or benzol and remove their fat, then we can obtain a watery extract which, as I shall show further on, has a favorable influence in the production of at least relative immunity, without tuberculin reactions.

In examining these proteid substances obtained from the fluid of the culture, or from extraction of the germs, chemistry gives us no definite answer, but we find that they differ in their effects as compared with similar substances obtained from the unplanted culture fluid, so that the previously relatively inert substances have assumed new properties during the growth of the culture.

The fluid of the ripe culture when concentrated so as to represent one-tenth of the original bulk is the original tuberculin of Koch, after the bacilli are filtered out. This, when injected in animals and man, causes certain well defined effects according to the dose given, most marked among which are acceleration of the heart action and rise of temperature, and in man a sense of lassitude, often aching in the back and loins, headaches, and nausea.

For such an effect in a healthy man we require doses of from twenty to fifty milligrammes; the symptoms appear in the course of from six to twenty-four hours, and last from a few hours to twenty-four hours. Smaller doses show a correspondingly slighter effect, but ten milligrammes produce as a rule no effect at all in a healthy full-grown person.

If, however, the subject of the experiment is suffering from tuberculosis, even minute doses (ten milligrammes or less), and in some instances in my experience as small a dose as one-tenth of a milligramme, cause the above stated symptoms to be more or less pronounced. The same is true in animals: doses which in the healthy animal cause no disturbance whatever are followed by increased temperature if tuberculosis is present; and upon this peculiarity depends the diagnostic value of tuberculin.

If we ask for the reason of this peculiar

behavior of the tubercular organism to an otherwise non-effective dose of tuberculin, we can offer only theoretical explanations, but all such heretofore proposed by myself and others are not entirely satisfactory.

The actual facts observed are, however, that the tubercular locality shows evidence of marked congestion, and in experimental work with animals we find this, together with capillary stasis and obstruction, and minute capillary hemorrhages in the tubercular organs.

If we inquire into the therapeutic uses of tuberculin we learn that the doses can be so adjusted as to avoid the physiological effects mentioned, and that the remedy can then be increased very gradually until the patient or animal can tolerate comparatively large doses without symptoms or discomfort, producing thereby only local reactions.

Under such use many cures have been established in the human subject, and more recently the Bureau of Animal Industry of Washington has accomplished a cure in bovine tuberculosis by the use of tuberculin.

In the smaller experiment animals, especially in the guinea-pig, an absolute cure must ever be difficult or impossible; they suffer from disseminated tuberculosis from the beginning, and if the tubercular process has been controlled so that little of tubercular tissue is formed or left, the animals die from secondary effects before a final disappearance of all tubercle can be accomplished.

Professor Koch has produced marked curative effects, and others have made similar claims. In our laboratory similar experiments have also shown a certain degree of influence, but in no case have we accomplished an absolute cure with tuberculin.

These observations confirm, however, that tuberculin does contain something which tends to a cure of tuberculosis, and those who have had the greatest experience in its use are very positive in asserting this fact.

Koch, Klebs, Hunter, Trudeau and myself have endeavored to isolate the valuable and curative part of the culture of tubercle bacilli with varying degrees of success.

The Klebs modifications have given the best results, especially in so far that the one he calls "Antipthysin" does not produce fever even in large doses, whereas tuberculocidin and Hunter's and Trudeau's products seem to contain more or less fever-producing substances.

Under antipthysin, with which I have had experience in the treatment of several hun-

dred cases, some of which I have heretofore reported, the best clinical results have thus far been obtained; and while I have not been able to fully confirm the claims made by its author as to its value in the animal experiments, although most painstakingly repeated during the last year in my laboratory, and while the claims made by its author "that antipthysin kills tubercle bacilli *in vitro*" proved incorrect in an experiment started by himself in our laboratory shortly before he left, and of which I have noted the results, I have not the slightest doubt of its clinical value and its influence upon the purely tubercular process.

The failure to kill tubercle bacilli *in vitro* by their immersion in antipthysin by no means proves that under continued use of the remedy the germ is not adversely affected in our patients; neither must the action be direct, as it scarcely can be under the small doses which prove effective; on the contrary, it is much more probable that the action is only supplementary to the natural antitoxic and germicidal action of the living tissues, especially the blood.

As to the mode of action of these as of many other remedies, we can at most offer more or less plausible theories; surely no one is in a position to offer conclusions. We are not prepared to do this even as to the action of mercury in syphilis after many years of its use. The small dose effective cannot be directly germicidal, and yet under its continued employment syphilitic lesions are influenced so that they disappear.

Under the clinical use of antipthysin or tuberculinum purificatum I and many other observers who expect to eventually report their work independently, or have already done so, have seen areas of dulness clear up and return to normal conditions, the abnormal respiratory sounds giving place to normal vesicular respiration with corresponding improvement in the general condition of patients and disappearance of symptoms—a result in tubercular disease of the lung entirely unique in all past experience.

Without the use of this remedy, or of tuberculin which preceded it, I have never witnessed such local changes, and if the remedies under which only we observe this are not responsible for it, there would be no other explanation than that these observations are always coincidences, and that the physical phenomena which we observed to disappear were due to recent acute pneumonic processes, congestions, or edema com-

plicating the particular case. That this was not the explanation I am quite sure, because in many instances there had been at no time any acute inflammatory condition in the lung, and the cases presented the usual evidence of tubercular disease.

I must, however, here point out that these favorable and unique local changes do not by any means always include the entire lung portions involved, and that localities where the physical signs justified the belief that the lesions were old and probably due to fibroid or caseous changes with or without cavities showed often but slight or no improvement.

My impression under most careful records at each examination has been that localities the seat of more recent extension of the disease cleared up, whereas the older lesions showed little or no influence.

In many early-stage cases where the disease was not extensive the physical evidence disappeared entirely; in other cases where both lungs were involved the side showing the slighter abnormal percussion and auscultation phenomena cleared up entirely, the more involved side only partially, and this was the case with all patients which were treated with the remedy under the auspices of the New Orleans Commission a year ago, and which justified those who examined the patients to say of them, as I say of my own cases, that they never before witnessed such results.

While I am of course unable to say what the total of my clinical results would have been had I not employed the remedies under consideration, the results have greatly improved under their use, and the last report made by me of the work done in the Winyah Sanitarium\* shows twice as large a percentage of cases apparently recovered, or greatly improved, as I was able to obtain prior to the time when I first began the use of crude tuberculin in selected cases.

I cannot appreciate that my clinical material has on the whole been more favorable, nor have I made other important changes in the treatment and care of my patients. I have then as now recognized the importance of dietetic and hygienic measures and of climatic treatment, and have conscientiously insisted upon them at all times with every patient who has come under my care; and while I am well convinced that without such a course and the advantage of having my patients under more constant professional control the results would have been materially changed, I am equally convinced that the addition of these remedies has been a great help.

This clinical experience is further confirmed by bacteriological examinations of sputum from cases under treatment, in most of which a marked degeneration of tubercle bacilli was observed to occur in from four to six weeks' use of the remedy; in many the number of germs was materially diminished; while in some cases they as well as the sputum disappeared entirely.

In all cases sputum examinations were made before the treatment was begun, and the slides were preserved for comparison.

I am well aware that degeneration forms of tubercle bacilli are often found in tubercular sputum, and even in cases in which the disease pursues an unfavorable course—indeed, without the use of culture products we find these forms, most frequently in patients who are making rapid progress toward recovery, or who are nearing a fatal issue.

With the remedies under consideration I have noted the gradual increase of degeneration forms quite uniformly in *all* cases, until in many slides not a single well formed bacillus could be demonstrated, so that in some instances it was a question whether the distorted and nearly coccus-like form was a tu-

\* This report of 182 cases treated at the Winyah Sanitarium at Asheville, N. C., is published in the THERAPEUTIC GAZETTE for May, 1896, in full, showing the following:

#### RECAPITULATION OF RESULTS.

CLASS.	No. of Cases treated.	Apparently Recovered.		Disease Arrested; Greatly Improved.		Improved.		Not Improved.		Grown Worse or Died.		Corresponding to
		No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
A	32	26	81	5	16	1	3	0	0	0	0	Early stage.
B	74	26	35.1	25	34	17	23	3	4	3	4	Middle stage.
C	76	7	9	26	34.2	11	14.4	3	4	29	38.4	Last stage.
Total (all cases)	182	59	32.4	56	30.8	29	16	6	3.3	32	17.5	All stages.

bercle bacillus at all—while at the same time the number showed a steady decrease until in the most favorable cases none were found at all—an experience quite different from that in which a few of the bacilli show a similar condition.

This almost regular and uniform observation causes me to entertain the thought that the degeneration stands in relation to the remedy; occasional exceptions were noted, however, but they could be accounted for in almost all cases.

A recent contradictory observation in a case may be of interest. The patient had progressed most favorably in all respects under the use of tuberculinum purificatum; the sputum, after having shown degeneration and decrease of the number of tubercle bacilli, had become very slight in quantity and contained no bacilli whatever when last examined. Thereafter the patient began to show some rises of temperature, first slight, but gradually increasing, lost her appetite, and diminished in weight; the cough also increased; but locally the most painstaking examination furnished no clue for several weeks as to the cause of this unfavorable change.

There was, however, a small area below the clavicle which had been undergoing no change whatever from the first examination to the last; the percussion note there had always been flat and the respiration bronchial. In this area moist sounds began to appear, and under an increase of the fever and the cough the patient suddenly discharged several large mouthfuls of muco-purulent matter tinged with blood, when an amelioration of the symptoms took place. In this sputum we found well formed and stained tubercle bacilli in great numbers, and the small dull area spoken of showed now every evidence of a cavity.

As to the explanation of this experience there can be no doubt that the dull locality which had remained uninfluenced was the seat of a caseous mass more or less encapsuled; that this caseous mass softened and absorption from it gave rise to fever; that the increase in cough was due to local irritation; and that the free expectoration coincided with the discharge of the cavity into a bronchus.

That the discharged liquefied, caseous material contained tubercle bacilli would be most natural, for it is not to be thought of that the remedies employed could possibly have reached or influenced these germs in the encapsuled dead tissue entirely removed from the circulation.

In this matter of degeneration observed in sputum I would however not wish to be too positive, and I invite other observers to study the subject. Its occurrence I am sure of—that is to say, we observe a difference in the appearance of the germs from a regular well defined bacillus; we note a granular type, shorter and club-shaped forms, until finally an extreme stage is reached, which has nothing but a coccus-like appearance, perhaps slightly elongated, and more or less perfectly stained.

We have a further confirmation of the clinical value of these culture products in their effect upon lupus and other tubercular processes which are accessible to direct inspection.

The numerous cases of lupus which were recorded by most competent observers as having been favorably influenced or cured with the injection of tuberculin give unmis-takable testimony; the only difficulty was that although lupus could be brought to heal and cicatrize under its use, the effect was rarely a permanent one; after varying periods of time new manifestations became apparent in and adjacent to the cicatrized tissue, and the disease recurred.

Discouraging as this experience was, it nevertheless demonstrated the curative influence and the direct specific effect of the remedy, because we have no other substance which we can inject in the patient's back or arm remote from the local lesion and obtain the slightest influence upon lupus or any other tubercular process.

For these relapses in lupus, as for the incomplete or partial effect of the culture products upon other tubercular processes, there are undoubtedly good and sufficient reasons, if we only understand them. One of the reasons is obvious, and might have been recognized *a priori* as an insuperable limitation, namely, the non-vascular condition of all tubercle, the aggregation of minute tubercle into larger ones, and these into small or large nodules, their caseous degeneration, and the consequent inaccessibility of such isolated or aggregated tubercle to the circulation. Such tubercle could only be reached by penetration of the remedy upon the principle of osmosis.

The larger the tubercle and the more advanced it is in degeneration, the greater is the probability that the contained tubercle bacilli are effectually protected from the influence of remedies which are thus to reach it through the blood, and if in addition we



remember the formation of new cicatricial tissue upon the periphery of tubercle, the frequent complete obstruction of blood and lymph channels in the vicinity of tubercle, and even at considerable distances from it, we need not wonder that the results from treatment with these products have as a rule been only partial, and have not met the hopes of those who, in their enthusiasm over the primary evidence, forgot all their pathology and expected that Nature had reversed her laws in the production of a veritable miracle, and that this perihelion of blind faith was of necessity followed by the aphe-  
 lion of skepticism.

I have, however, no doubt that the observation of the toxic effects of crude tuberculin added also to the disappointment, and it was natural to reason that if the remedy could not as a rule produce a permanent cure, it was unjustifiable to incur the risks which appeared at times quite serious under the large and actually injurious doses of tuberculin, and the forced increase of dosage, by which it was hoped to compel better results.

In other local tuberculoses accessible to inspection we may also remember the good and at times brilliant results which were observed in the superficial tubercular affections of the larynx, and more recently the observations of favorable results in tubercular ulcers of the nose, the eyelids, the ear, and upon the integument, by the use of purified tuberculin when only locally applied.

I myself saw the complete healing and cicatrization of a recent tubercular ulcer upon the lower lip of a patient far advanced in pulmonary tuberculosis, and in which no other treatment than the local and hypodermic use of purified tuberculin was made use of. All who have seen such ulcers in advanced and exhausted cases of consumption know very well that they never heal, but tend to undermine the integument and to enlarge indefinitely until the patient dies.

The clinical value of the culture products, especially of the purified preparations, is further manifest in the control of the fever, which we observe in the early stages of pulmonary tuberculosis at a period when the elevation of temperature can be presumed to be due to the absorption of the toxic products of the germs only.

In the more fully established disease, where we have also absorption of liquefied and decomposing organic substances from necrotic tissue and from suppuration, the cause of the fever becomes very complex, and the influence

of the purified culture products in its removal is then at best only partial.

Unless in acute miliary tuberculosis the purely tubercular fever is very moderate, rarely exceeding 100° F.; quite different from the hectic and septic fever in advanced cases, which would undoubtedly exist and continue even if all tubercle bacilli could be removed from the diseased organism.

While the tubercle bacillus is undoubtedly primarily responsible for the lesions which subsequently cause and maintain fever, it must be readily understood that when the tissues have degenerated, softened, and liquefied, when they have become necrotic, when other germs have gained entrance and have caused suppuration, the substances which are now being absorbed have no direct connection with the tubercle bacillus; that they are the products of decomposing organic matter, and produce the fever, emaciation, night sweats, and exhaustion, no matter whether the tubercle bacillus or some other agency has primarily been responsible.

This we should also have known *a priori*, and we should never have been disappointed when we realized the true relation by experience.

Such fever we cannot hope to remove by the use of tuberculin, or by its purified modifications, and in estimating their antagonistic properties to the bacillus of tuberculosis by their influence over fever we must not select such cases for the basis of our investigations, but rather choose very early stages of the disease, where no such secondary and tertiary causes are usually at work.

But even in these so-called early stages we are occasionally liable to overlook the presence of such secondary causes, as for instance when the lung affection is secondary to a breaking down of a bronchial or mesenteric gland and when it is possible that absorption from it continues to deliver pyrogenic products into the circulation.

Careful study and observation enable us, however, as a rule to distinguish between fever due to secondary causes and effects and that due to the purely tubercular process, which latter alone can be expected to be influenced. That it is favorably influenced I have every reason to believe, having almost uniformly witnessed the advent of a normal temperature in the course of the first month's use of the purified products in all such uncomplicated early stage cases.

In cases where the fever was probably due to the absorption of products arising from

degeneration and disintegration of tissue these remedies have as a rule shown a mitigating influence, but other measures were necessary and were employed, under the combination of which I have been able to frequently conduct cases to an entire cessation of fever as well of other symptoms; while unfortunately in a number of far advanced cases the disease did not appear to be influenced sufficiently to make any difference in the final outcome.

A case showing the influence of purified tuberculin upon the local lesions, the fever, and the general condition of the patient, quite recently observed, may be of interest, and it also shows the value of the remedy for clinical diagnosis, and may serve for an example of cases in which we can hope for more uniform favorable results.

Mrs. B. had been in good health until last August. She gave no tubercular family history. At the age of eighteen she had a severe cough lasting four or five months, under which she had some fever, lost flesh, and grew weak; from this she recovered perfectly, and had no trouble with her lungs until last summer.

She came under my care last October, complaining of a slight hacking cough and a constant sense of exhaustion and fatigue. Her nutrition was still good, appetite fair, all functions except the heart action appeared normal. The heart showed no organic disease, but the slightest exertion caused an increase of the pulse-rate of forty to eighty beats to the minute; indeed the pulse was several times found so rapid after ascending a flight of easy stairs that it could not be counted.

Examination of the chest showed slight relative dullness of right upper lobe, both anterior and posterior; neither was the left apex above the clavicle fully resonant. On auscultation there was harsh respiration with prolonged expiration above and below right clavicle and over supraspinous fossa; on the left side rough inspiration with prolonged expiration in the same localities, and a few fine crepitant râles were also noted in left supraspinous fossa. The sputum was mucous and contained no tubercle bacilli. Her temperature showed slight elevations from the normal toward evening, but at no time from October to January did it exceed  $100\frac{1}{2}^{\circ}$ .

The diagnosis was "probably tuberculosis," with recent extension to the left side.

The treatment consisted in general hygienic and dietetic measures, systematic climatic

treatment, and the use of the pneumatic cabinet with inhalations; the latter were continued for about six weeks, when the cough had disappeared.

For external reasons purified tuberculin was not employed until January, when after repeated examinations the local condition did not show any change whatever, and the temperature had shown a slight tendency to an increase. Maxima of  $100^{\circ}$  F. and over became more frequent in December, and the duration of elevation above normal had increased from a few hours in October to six or more hours each day.

On January 6 I began the administration of purified tuberculin in doses from  $\frac{1}{10}$  to  $1\frac{1}{2}$  cubic centimeters daily, which was continued to February 10. There had been no rise of temperature since January 20, the pulse grew slower, and exertion had much less effect upon its frequency; the sense of exhaustion rapidly disappeared, and her general condition improved in every way; she gained five pounds in weight.

Locally, examination showed no longer any relative dullness below the right clavicle, nor supraspinous on the right side; above the clavicle, however, the percussion note was unchanged, and continued relatively dull. Auscultation above the clavicle showed no change; on the left side the respiration, while not yet ideally vesicular, had lost much of its rough character, and the crepitant râles disappeared.

Although the sputum contained no tubercle bacilli we could scarcely expect to find them in this stage of the disease, and the diagnosis of tuberculosis was not impaired on that account; indeed no other diagnosis seemed admissible, and the result of treatment with purified tuberculin confirmed it.

The conditions which for three months remained uninfluenced quickly yielded to its use, with unmistakable changes toward normal conditions in the abnormal phenomena elicited by physical examination, and a prompt cessation of the attending fever.

If I am correct in my assumption that the lung symptoms at the age of eighteen were due to a circumscribed tuberculosis of the right apex, from which a relative recovery occurred at that time, and that the disease became again active and extended both in the right apex and to the left apex last summer, it is not likely that the relative dullness nor the harsh inspiration and prolonged expiration above the right clavicle will entirely disappear, these being undoubtedly due to

fixed structural changes which occurred in the course toward recovery in the first attack.

If I am further correct that from the right side the disease extended locally and also to the left side, there must have been some liberation of tubercle bacilli in the right apex, in connection with softening and absorption of caseous tubercle; and if more encapsuled caseous tissue is now there a recurrence of such an accident is possible in the future, for it is not probable that the tubercle bacilli therein contained can be reached by the remedies at present employed, and which at most can only bring about the state of affairs which existed prior to the extension. Such a result will undoubtedly be accomplished, and when accomplished we shall have done all that in reason can be expected.\*

The claims for the serum from animals treated with the culture products of the bacillus, with the view of producing immunity, furnish additional evidence that the culture contains curative substances.

Maragliano has worked in this direction for a number of years, and his persistent efforts deserve great credit; he was followed in France, and subsequently in this country, by similar efforts, and from the reports which I have seen within the last year Maragliano seems to have made advances in this direction which we cannot ignore, and which justify one in the hope that serum therapy will still be available in tubercular disease either alone or in combination with direct culture products of the germ.

In the culture of the tubercle bacillus we have on the one hand the products of its vegetation and on the other the bodies of the bacilli, which themselves contain curative substances, especially such as tend to the production of immunity.

Under the suggestion of Professor Klebs we injected dead tubercle bacilli in guinea-pigs in the fall and winter of 1894-5 and found, indeed, that the animals so treated showed a relative degree of immunity; but owing to the very limited absorption the work was given another direction after Professor Klebs took charge of our laboratory, chiefly in the use of extractives from the bodies of tubercle bacilli.

Their solution proved extremely difficult; a glycerin extract proved less efficient than expected, and the results from its use, although at times somewhat encouraging, did not jus-

tify any positive claims. Extracting them with ether and alcohol, Professor Klebs obtained quite unexpectedly two fats—one very soluble and of a red color, the other with a much higher melting-point, and of a white color.

When extracted the two fats separate and both saponify, so that I can here show you the two forms of fat and the soaps which we have made. The germs when deprived of their fat lose their peculiar tinctorial properties.

Other extractives were thereafter made with the production of a nuclein, and with the latter some experiments were made upon animals, which also proved unsatisfactory.

This status had been reached when our relations with Professor Klebs ceased; but the work was continued under my direction by Dr. Dunn, who had carried out the experimental details with Professor Klebs before.

After extracting both fats with benzol, drying and powdering the germs, we found that larger quantities of extractive matter could be obtained by prolonged maceration in distilled water over a warm water-bath, but we finally arrived at a stage where no appreciable quantities were longer obtainable.

We next extracted with glycerin and water, and thereafter we added a small percentage of sodium hydrate to the water and again obtained larger amounts of extractive matter by both methods; this finally also failing we acidulated with hydrochloric acid, and again obtained extractive substances.

All these substances were collected separately, and at the end we had but a minute residue of the broken up bacilli, which we believe to be chiefly cellulose.

With these combined substances we undertook animal experiments with the view of determining their value in producing antitoxic and bacterial immunity. While not yet completed I can say that our control animals are dead long ago, and that those of the treated animals which received the greatest amount appear to live much longer, and are progressing most favorably.

A series of larger animals—goats—were in the meanwhile injected with the products of the whole tubercle culture, according to Maragliano, and after following for six months the injections exactly after the published method of Maragliano, serum was taken and compared as to its antitoxic effect with some of Maragliano's serum purchased from his agents in this country, with the result that both specimens of serum showed antitoxic properties as claimed by Maragliano, the

\*This patient improved further as anticipated, left lung becoming entirely clear, with an additional gain of six pounds in weight.

animals surviving the minimum fatal dose of toxins, whereas the control animals died within forty-eight hours.

To further increase the effect we now continue the injections according to Maragliano, but add increasing quantities of the aforesaid extractives of the germ, while in the meantime the therapeutic effect of the obtained serum and that of Maragliano is being tried on guinea-pigs.

Two years ago Professor Klebs used Paquin's horse serum in a series of animals for its curative influence, with however entirely negative results. Concluding that the serum was impure we made serum from the horse ourselves by Paquin's method, but it proved equally inefficient to influence the tubercular process.

The Paquin serum differs, however, from that of Maragliano in the method of preparation in essentials which would *a priori* justify the expectation that the latter would be more efficient.

In two series of animal experiments, involving the use of over one hundred guinea-pigs, the relative value of antiphthisin, of tuberculinum purificatum containing some of the toxic and the extractive substances of the bacillus, also of Paquin's serum and of Vaughan's nuclein, was sought to be determined.

In the first series the infections were made with large numbers of highly virulent germs, and treatment proved of no influence excepting that the animals which were treated with the purified tuberculin gave better results in living longer than all others, and showing on the whole less advanced and more reparative changes when examined post mortem.

In the second series the number of bacilli used for infection were less, all the animals lived longer; the pigs treated with Paquin's serum and those treated with nuclein died first, and before the controls; there was, however, the interesting fact that the nuclein pigs did not emaciate, and were quite fat when they died. Again, the pigs which were treated with the purified tuberculin, as above stated, outlived all others, and showed the least pathological changes post mortem. (I could at that time obtain none of Maragliano's serum for comparison.)

This is as far as Dr. Dunn and myself have gone in the experimental work with serum, and I gladly acknowledge our indebtedness to Professor Klebs for instructions and help received during his connection with our laboratory, without which we could not have

gone on as well and done the work free from errors which has been accomplished within the last year.

What the ultimate outcome in the production of antitoxic serum and antagonistic germ products will be, or what we will accomplish in the production of bacterial immunity, whether through germ products directly or through serum, our work does not show entirely, but that it will be accomplished in one way or the other I have every reason to believe.

The purified culture products having given me such satisfactory therapeutic results in human tuberculosis, and being so peculiarly free from all reactions and unpleasant complications, I have not felt justified to use the serum or the tubercle bacilli extract in the treatment of my patients, nor shall I do so until my experimental work has progressed further and shows their superiority, or until we have unquestionable therapeutic evidence from reliable sources in a large number of cases.

For experimental work I shall be glad to furnish specimens of the serum we made after Maragliano, and which appears equal to it in all respects, or the extractive substances of the bacillus which we have produced.

From the foregoing considerations it appears, however, that we are obliged to conclude that the culture products of the tubercle bacillus, especially in the form of antiphthisin, purified tuberculin, and the extracts of the bacillus such as I use in my clinical and experimental work, have an antagonistic influence to the bacillus of tuberculosis and to its toxins, and that these products have peculiar physiological and therapeutic properties and are of real value in the treatment of tubercular affections. It appears, further, that their effect is proportionate to the accessibility of the remedy through the circulation by osmosis to the localized tubercle, and to the degree of immunity which is produced during their administration.

Clinically, we have learned that the purified products are absolutely safe and free from the toxic properties of crude tuberculin, that they can be given in any stage and phase of the disease without incurring danger or even discomfort, and that while the results obtained in advanced cases are frequently only partial, and at times entirely negative, in the early stage these remedies are valuable and attended with unmistakable curative effects of a nature such as we have not witnessed from any other remedy.

I presume that it would be more satisfactory to you if I could have presented all the evidence that has been accumulated in the course of six years for and against the belief which I entertain; if at the same time I could have shown you my views on all that pertains to tuberculosis, particularly to its etiology, pathology, and its course toward recovery, or toward a fatal issue, and the manifold external and internal influences which are at work in favoring one or the other result, all of which would aid you in following my method of discipline in the examination of the evidence and would help you in testing the logic of my conclusions. This is necessarily impossible, implying as it would a voluminous book instead of a short essay.

Unable to present such voluminous details, I could only indicate to you in a more general way the character of the evidence; but I may say that in examining it I have endeavored to make ample allowance for unconscious personal bias which, if it exists in my case, must necessarily be in favor of the remedies, for who in search of them, and in the hope that a real advance has been made, could help preferring a confirmative answer which would imply the mitigation, restriction, and more ready cure of a disease with a mortality such as we see in tuberculosis? And who is there that could repress feelings more or less strong which make him eager for success?

These feelings, although thoroughly humane, nevertheless become the cause of a natural bias, and stand in the way of the necessary calmness by which one is enabled to recognize or infer one truth as well as another.

When the evidence is simple and direct, and the subject an uncomplicated one, an undesired truth is readily recognized and compels admission; the necessary mental discipline for its recognition is less; but when as in the present instance the evidence is often obscure and largely circumstantial, and the subject greatly involved, it is frequently possible to offer some other explanation for what we see and believe to stand in relation to the responsible causes and observed effects.

Recognizing these difficulties I have endeavored to be on my guard at all times. I have examined all other possible explanations of the observed facts and results, and have tried to accept only that which appeared conservative and rational in accordance with the evidence; but for such a course a much stronger paper could have been written.

Such being the case, I hope from my hearers who may wish to differ with me an

equally candid consideration, and the recognition of the possible existence of an *opposite bias* which may have resulted from past disappointment with new remedies, from theoretical considerations without evidence, or with insufficient evidence, or from insufficient appreciation of the complexity of the subject.

I hope to have at least justified the conclusion that the field of bacterio-therapeutics in tuberculosis is a promising one; that something of real value has already been accomplished; that past experience points to a contained truth, which it is an advantage to recognize, and which we must further strive to obtain in its purity.

I am confident of progress and improvement in phthiso-therapy; bacterial products, especially the extractive substances of the bacillus, will play an important part. But I cannot believe that we shall reach a stage where we can resuscitate, and bring back to the normal, tissues which have so far degenerated that their state is incompatible with systemic life; much less that we shall be able to remove dead tissues artificially from the living organism by other than mechanical procedures. Such tissues must ever undergo the natural fixed changes which the peculiar existing conditions make necessary; they must be reacted upon, and in turn react upon their immediate vicinity and upon the entire organism. These reactions not only influence the destiny and final disposition of the degenerated tissues and of the foreign dead tissue, but they also determine more or less the ultimate result.

In considering the often apparent insufficiency of curative influences, we should bear in mind that the true and full pathological changes and their advance toward irremediable conditions, or toward conditions of greater peril to the patient than we supposed to exist, are not exactly known in the living subject, and that our expectations would often be modified if we could know the true relations in the individual case.

Appreciating this, we are admonished to leave nothing undone to bring our patients under the most favorable influences in the earlier stages of the disease, knowing that then the pathological changes are necessarily less formidable, and by doing this to reduce more and more the number of advanced cases who come under our care at a time when their treatment is nothing more than a justifiable experiment, in the frequent failure of which the remedies employed are not to be condemned on account of natural limitations.

# The Therapeutic Gazette

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## Leading Articles.

### THE USE OF OTHER DRUGS THAN DIGITALIS IN CARDIAC FAILURE IN ADULTS.

It is not the intention of this article to discuss the value of digitalis nor the occasions on which it fails in the treatment of heart disease, although it is a noteworthy fact that in those cases in which there is true fatty heart, and in some instances of dilatation, or in the true senile heart in which the organ seems to be inherently feeble, digitalis fails to do good, either giving no relief at all or else causing more discomfort than existed previous to its administration. Under these circumstances the physician who finds that his chief standby has failed him sometimes feels at his wit's end as to what he should prescribe for his patient, for often in these cases nitroglycerin with or without digitalis also fails to be of benefit, probably because arterial tension is already so low that its still further reduction by this drug increases the discomfort of the patient. Under these

circumstances we believe that the continuous administration of full doses of tincture of nux vomica, or it may be of strychnine, affords the best treatment which we can resort to. Under its influence the valvular sounds which have seemed feeble and indistinct become more well defined and clear, the arterial tension is raised, and the general tone of the vascular system seems to be improved. The doses for the adult, unless there is some contraindication to such large ones, should usually be not less than ten drops and often as much as twenty drops of the tincture given three times a day, and should there be any tendency to cardiac irritability some tincture of belladonna or tincture of hyoscyamus may be combined with the nux vomica with advantage, chiefly for the vaso-motor effect. Very often in these cases the greatest discomfort will be at night, and the patient will either suffer from constant dyspnea, or after sleeping a few hours in comparative comfort will waken with a paroxysm of dyspnea which causes him and his friends great alarm. In some instances, it is true, this paroxysm depends upon a gradually increasing arterial tension associated with or dependent upon well marked atheromatous and renal changes, but in other instances, where such changes in the blood-vessels are not marked, and where the arterial tension is not high, and where repeated examinations of the urine fail to reveal albumen or other signs of renal mischief, such a cause for the cardiac embarrassment cannot be depended upon. In many instances these attacks can be put aside by administering with the nux vomica and hyoscyamus that we have named, small doses of morphine either by the mouth or hypodermically. In some instances, too, where it seems advisable to aid the strychnine, or to supplant it by the use of caffeine, and where this drug tends to produce wakefulness, the additional use of morphine not only acts as a circulatory regulator and stimulant, but also tends to overcome this disadvantage in the use of the active principle of coffee. In this manner a patient may be given a comfortable night's rest, or at least not suffer from his symptoms in their most severe form. In the attack itself there is nothing which compares, among the drugs which can be left with the family for immediate use while the physician is being sent for, with dessertspoonful doses of Hoffmann's anodyne, and, when the physician arrives a hypodermic injection of one-tenth to one-twentieth of a grain of strychnine is in the majority of cases strongly indicated.

THE GAZETTE QUOTED EVERYWHERE.

Amongst the very large number of exchanges of the THERAPEUTIC GAZETTE its editors have an opportunity of noticing the frequency with which its contemporaries find its contents of sufficient value to make it worth their while to abstract information from its pages. In the great majority of instances credit is given to the GAZETTE, and we are always glad that such unsought for recognition of the value of our material is manifested.

One particular instance in which credit was not given us as a rule has interested us more than a little. The readers of the GAZETTE will remember that in the issue of June 15, 1896, Dr. Hartzell contributed a paper to the THERAPEUTIC GAZETTE upon Some of the Uses of Resorcin in Dermatology, an article which contained a considerable number of prescriptions. From that time to this we have constantly met in the pages of various medical journals a repetition of these prescriptions. The French journals, as is their custom so frequently, abstracted it one after the other, sometimes giving credit to us, but more commonly to the French journal from which they took it. From France these prescriptions extended to Germany and the various German journals printed them, but few of them giving the reference to the THERAPEUTIC GAZETTE. Finally, one of the great American medical weeklies abstracted them from a French journal to which they gave credit, and now we find these same prescriptions in the *Journal des Praticiens* of February 6, 1897, credit being given to the *Therapeutische Wochenschrift*. The course over which these prescriptions have traveled in medical literature reminds one of that followed by an ocean derelict.

THE INFLUENCE OF DRUGS UPON THE SECRETION OF BILE.

In the *Journal of Experimental Medicine*, No. 1, vol. ii, just issued, is an exceedingly interesting communication by Dr. Franz Pfaff and a student of medicine, Mr. Balch, upon this important subject. Their studies were made upon a woman of thirty-eight who entered the Massachusetts General Hospital and who acquired, as a result of a necessary operation, a biliary fistula. After the patient had recovered from the operation and had regained her normal health, except for the continuance of the biliary discharge from the fistulous open-

ing, Messrs. Pfaff and Balch proceeded to put her upon a standard diet and then to study the changes which took place in the biliary outflow from hour to hour and day to day. Although results obtained from a single individual cannot be used as positive determining factors in the decision of a scientific question owing to the possibility of idiosyncrasy in the individual producing unexpected results, a number of the facts which they have obtained are of great interest and throw considerable light upon previous researches which have been made upon this subject. In the early part of their paper they give a valuable summary of practically all the work which has been done upon the biliary secretion of human beings, excluding whenever possible studies and results which were evidently from their character of little value in the production of scientific results. After careful study of the results which were obtained by these earlier investigators and guided to a certain extent by these conclusions, Pfaff and Balch then proceeded to administer to their patient different substances supposed to possess a stimulant influence upon the flow of the bile. We have not space in this notice to describe the technique and details of their investigation: suffice it to state that the results which they have obtained are quite at variance with those which have been expected, and we find to our surprise, as it was doubtless to themselves, that there was practically but one substance which materially increased the flow of bile, provided that the considerable variations which naturally take place independent of the influence of remedies were excluded. This substance was bile itself. Thus under the ingestion of the woman's own bile, which had been inspissated and made up into pills, the total quantity of bile secreted in twenty-four hours rose from about 500 cubic centimeters in twenty-four hours to nearly 700 cubic centimeters, and when the bile was no longer administered decreased to 440 cubic centimeters.

When ox-bile was given it rose to nearly 800 cubic centimeters, and fell with great rapidity to about 400 cubic centimeters as soon as this substance was no longer administered; and finally when bile salts were given a similar and almost equally marked increase occurred.

On the other hand the administration of calomel produced absolutely no effect, and corrosive sublimate was equally ineffective, no variations from the normal flow being produced.

The only drug which seemed to have any considerable influence beyond the bile which we have mentioned was salol, but even this produced so slight an increase that there is grave doubt as to whether it produced actual stimulation of biliary flow, for the flow only increased from 460 to 540 cubic centimeters. Although these results are surprising when compared to the results which we expect to obtain in the ordinary practice of medicine when calomel and other cholagogues are administered, they do not set themselves as diametrically opposed to the conclusions which have been reached by previous investigators, for it is a well known fact that many of the doses which have been found to produce a marked increase in biliary flow in animals, or in man, suffering from biliary fistula, have no such influence in a healthy individual; and, on the other hand, that some substances which are not considered by the average physician as possessing any hepatic influence have markedly increased the excretion of this hepatic secretion in experimental research. The variations between practical experience and the various scientific investigations which have been made upon cases of biliary fistula seem to make it evident that the mere existence of a biliary fistula in some unknown way modifies the influence of drugs which ordinarily possess the power of stimulating the liver to increased biliary secretion or excretion.

While all studies of this character must be regarded as of great importance and of considerable interest, we cannot help feeling that it will be a long time before practicing physicians will be willing to accept the idea that calomel and similar substances possess no influence upon the flow of bile in the ordinary individual.

Any physician or surgeon who has under his care a case of biliary fistula should utilize it in carrying out a careful investigation concerning this important subject, for it is only by comparing the results obtained in many investigations and eliminating the personal factors which are present in each case, that rules capable of wide application can be formulated for our guidance in practical medicine.

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#### THE TREATMENT OF VERTEBRAL FRACTURES.

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The consensus of professional opinion in regard to the prognosis and treatment of vertebral fractures as expressed by the ma-

jority of text-books is to the effect that these lesions, with the exception of those involving only the spinous processes, are dangerous and life-threatening; that when they are associated with symptoms of spinal compression the prognosis is almost absolutely hopeless; that the best that surgery can do is to treat them conservatively, keeping the patient on a water-bed and allowing Nature, if she will, to bring about union; that manipulations in the direction of reduction are either to be avoided or if employed are to be used only in exceptional cases and with very great care, and as a rule all operative procedures, at least in the early stages of these cases, are to be avoided.

This teaching is mainly based on the results of isolated cases reported singly by a large number of observers. There seem to be but few surgeons who have had an extensive experience with this class of injury, hence the communication of Poller (*Archiv für Chirurgie*, 1897) based on an extraordinary personal experience of upwards of thirty cases, all observed within the last five years, is of more than usual interest.

The cause of the injury in his cases was almost without exception a heavy weight coming from above and forcing the unfortunate ones forward, or as he described it, shutting them up like a pocket-knife. The result of pressure thus exerted was to crush and drive into each other the anterior portions of the vertebral bodies, forcing back the posterior portions in the direction of the spinal canal. The laminae and their processes were often torn from their attachments or otherwise injured. His patients often stated that they heard a crack in the back, after which, from increasing pressure of the descending mass, they lost consciousness. In some few cases the fracture was due to a fall or direct force or from a bending backward.

The lesion was usually situated in the lower thoracic and upper cervical vertebræ, this corresponding to the well recognized rule that fractures are most likely to occur in the regions uniting the more and less movable portions of the spinal column.

There usually appeared at the seat of the injury a more or less distinct hematoma, which did not, however, obscure the deformity, easily felt by passing the finger along the line of spinous processes. This deformity appeared as a space or break in the mid-line, sometimes over an inch wide. Crepitus and preternatural mobility usually could not be detected. Sometimes in transporting these



patients a distinct grating sound could be heard.

Diagnosis was as a rule readily made from the obvious deformity and sometimes abnormal mobility, together with the associated symptoms of injury to the cord. In the absence of typical symptoms, should there be excessive localized tenderness to pressure associated with a history of a crushing force bending the body forcibly forward on the pelvis, it is safe to conclude that the bones have been broken. Should the lesion be confined to the spinous process or posterior part of the arch it is likely that in a few days the patient will be able to raise himself in bed and will do this in spite of the prohibition of the surgeon, thus proving conclusively that no extensive bone lesion is present.

Together with fracture there is frequently luxation, the vertebral body being forced backward or possibly forward, in which case it may be felt on palpation through the abdomen, or in the case of the four upper cervical vertebrae, by examining the posterior pharyngeal wall. The author gives a brief but very clear outline of symptomatology dependent upon the pressure of displaced bone, calling attention to a diagnostic point of extreme importance—*i.e.*, the time at which pressure symptoms develop. Immediate palsy and sensory disturbances point to a primary crushing; these symptoms coming on later in the course of hours or days are suggestive of bleeding or inflammation.

He states that the prognosis of all these fractures involving the posterior part of the arch or the spinous processes alone, without injury to the cord or the nerves, is absolutely good, the patients completely regaining their strength and often the full mobility of the back. Fifteen of what he calls favorable cases are reported.

Treatment on an average was continued for four months. It is interesting to note that one case of priapism and two of vesical and rectal paresis recovered completely.

The treatment consists in placing the patients absolutely at rest in bed, the kyphosis being corrected by carefully applied pads, later followed by extension and the application of Sayre's plaster-of-Paris dressing. In three cases in which the posterior projection was very marked the deformity was reduced under ether. Electricity, massage and douches were employed persistently to restore the muscles to their full tone. Motion was normal after recovery in two-thirds of all cases.

In nineteen cases the fracture was compli-

cated by injury to the spinal cord. Thirteen of these died; six completely or almost completely recovered.

The situation and pathology of the lesions are described and the cause of death noted in the fatal cases. This usually came from the urinary system.

The treatment adopted was forcible extension and reposition of fragments under chloroform. As to the technique of this procedure, the patient was fully anesthetized and extension straps were secured to his head and fastened to a bar which was seized by a powerful assistant; two assistants then seized him by the ankles, and all three pulling together at the word made sufficient traction to lift the patient from the bed. The surgeon with one fist protected by a padded towel then proceeded to knead and force the bone into position. At times the bones could be felt springing into their proper place as impaction was relieved.

It is pointed out that the dangers and disadvantages of this procedure are practically *nil*. Its advantages are evident. Twenty-two of the author's cases were forcibly reduced in this way, and in not a single instance was even partial paresis or anesthesia produced; and in at least one case there was almost immediate restoration of motion and sensation, previously totally abolished.

The subsequent treatment of these cases was most carefully conducted. They were never allowed to move from the bed in less than two months, in the meantime every precaution being taken to avoid bed-sores and prevent cystitis. When it was evident that the bones had become well united the patients were extended daily as for the application of a plaster bandage until they could endure this treatment for from twenty to thirty minutes at a time. A plaster bandage was then applied, and they were placed in a wheeled walking chair, or given crutches. In vertebral fractures the plaster dressing was not applied.

Special caution is given against getting these patients out of bed too soon and against allowing them to begin their work before a sufficient time has elapsed for complete consolidation, since recorded cases show that slow inflammatory processes are likely to be set up followed by softening and great deformity.

The author concludes by stating that in all cases of vertebral fractures with symptoms of compression and forward angulation of the

spinal column immediate replacement under ether is indicated.

This communication of Poller's is chiefly valuable because it will lead us to look more hopefully on cases of fracture followed by symptoms of spinal compression, and aside from operation offers a promising therapeutic measure, which is shown at most to be harmless.

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## Reports on Therapeutic Progress

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### IMPROVED METHODS OF TREATMENT IN EYE DISEASES, AND RECENT AD- VANCES IN OPHTHALMIC WORK.

THOMAS BICKERTON of Liverpool writes entertainingly on this topic in the *Liverpool Medico-Chirurgical Journal* for January, 1897. He says in regard to ophthalmia neonatorum if you look through your text-books, you will be at a great loss as to what are the best remedies to adopt. You will find a multiplicity of remedies mentioned, and, acting upon the various suggestions, you will perhaps have tried one drug at one time, and another on another occasion.

In this connection, and as an example of the vagueness of writers in demonstrating to the medical profession the methods of treatment in these cases, Bickerton cites two sentences which are the statements on this subject by a well known author: "Meantime the nurse or attendant should employ some lotion, dropped inside the lids every two or three hours." Again: "The iced compresses should be kept to the eye for an hour at a time, with the pause of an hour, and so on, or even continuously." Now, what are you to make out of directions such as these? Nothing, absolutely nothing; such directions only lead to helplessness and confusion.

In the author's own practice there is one method of treatment for ophthalmia neonatorum which he has never found to fail in curing this disease, even where the patient has been brought with the cornea already actually ulcerated.

The remedy he has found to be so efficacious as to be almost a specific for this disease is zinc chloride. The whole method consists in: (a) the constant application of iced zinc chloride lotion, one to two grains to the ounce, night and day; and (b) the scrupulous avoidance of any interference whatever with the eyelids. If the eyelids show a tendency to stick together a few drops of castor or olive oil dropped on the edges of the lids will

prevent this. Chloride of zinc is one of the most powerful of germicides, but like many other useful remedies it has been overlooked, owing to advertising chemists endeavoring to make money by the discovery of some new and attractive remedy, to the neglect of old, tried, and much more valuable ones. In applying this remedy but little good is obtained by its use intermittently; to derive its full value it must be applied continuously until all discharge has ceased, and for a short time after.

The manner in which he directs his patients to use this remedy is as follows: Procure an ordinary jam-jar, and into it put some chloride of zinc and water in the proportions of two grains of the former to an ounce of the latter; then place this jar inside a larger one, and pack the space between the two with ice. In this way the zinc lotion is kept cold without dilution. In this lotion many pads are kept, and when it is required to change a pad the used one is thrown away and a new pad from the lotion is placed, without being wrung out, directly on the eyelids. Thus the eye is constantly soaked with lotion, the lids are prevented from sticking together, and the discharge has free vent. Chloride of zinc is a most powerful germicide, and it may be used without fear of absorption and the production of general toxic effects.

The micrococci which cause this disease are probably destroyed by the action of the chloride of zinc, the effect of the continuous application of ice in lowering the local temperature being to diminish the vitality of the micrococci, thus rendering them more susceptible to the influence of the chemical reagent, and at the same time, by constricting the blood-vessels, to reduce the local inflammation, and to diminish the amount of discharge in which the organisms thrive.

In giving directions to the nurse as to how often the pads should be changed, the writer tells her "every few minutes," because you will be surprised to find how hot the eye becomes even in this time. This treatment he has found in his own practice to be infallible. He has not failed in a single case since employing it.

By some authors you are told to syringe the eyes well, particularly under the skin. The result of doing so is that the nurse not infrequently squirts some of the discharge into her own eyes, and besides this serious accident, in many cases the eyelids, owing to the extreme swelling, are so tense that they

cannot be elevated without causing much pain and risk of injury to the cornea. The effect of iced chloride of zinc lotion upon the eyes is most gratifying. Instead of the eyelids remaining tense and hard, you will find the skin regaining its normal color and the swelling rapidly subsiding. He recommends writing in red ink across your textbooks the treatment that he has now advocated for ophthalmia neonatorum. He feels certain that if you once try it you will never regret it. But you must make absolutely certain that the nurse changes the pads regularly and constantly, the discharge being extremely deleterious, and only neutralized by constant and fresh lotion. The difficulty occasioned by the lotion running over the patient's face and wetting the bed-clothes is easily got over by having a fold or two of toweling around the neck.

An infant was brought to the outdoor department three months ago. The mother was attended by a midwife, and on the third day the infant's eyes became inflamed, the inevitable poultice was applied, which rapidly becoming cold pressed the lids together, caused retention of discharge, and increased the local inflammation. When brought to the hospital a week or ten days later the disease was at its height, and the case looked unpromising. The zinc treatment was at once commenced, and from the very first application improvement was most marked, the threatened ulceration of the cornea ceased, and the eye was saved.

It may be said by some that the same result would have been obtained by the usual application of nitrate of silver, with a lotion of alum, of perchloride of mercury, boric, salicylic, or carbolic acid, etc. Perhaps so; but Bickerton has lost eyes, even though he treated with such remedies from the very commencement of inflammation, and has never lost an eye since adopting the above method.

#### CLINICAL AND BACTERIOLOGICAL RESEARCHES UPON THE ACTION OF THIOSINAMIN.

According to *Les Nouveaux Remèdes* of January 24, 1897, VAN HOORN has confirmed the studies of Hebra in regard to the action of thiosinamin. The injection of thiosinamin produces a redness and tumefaction of the surrounding skin, and later there is abundant desquamation. During the reaction following the injection the patient suffers from a sensation of heat and tension in the part.

Van Hoorn asserts that thiosinamin is very efficacious indeed in cases of lupus. The ulcers heal and the swelling disappears. The maximum quantity which is employed is three grains. In two women after five months of treatment with only one month's interruption, during which time two to three injections of thiosinamin in alcoholic solution in the proportion of fifteen per cent. were employed, there was loss of appetite, a sensation of fatigue, and general debility, which necessitated the suspending of the treatment. Bacteriological investigations showed that thiosinamin on pure bacterial cultures is not, however, a powerful germicide.

Van Hoorn, however, concludes his paper by once more highly recommending the use of thiosinamin in lupus, but says it is only of value when applied locally.

#### THE TREATMENT OF CONSTIPATION IN INFANTS.

The *Journal des Praticiens* of January 9, 1897, contains a practical article upon this subject: First, it deals with the local accidents which may produce constipation, calling to mind the fact that purgatives should not be given until we are confident that umbilical or other hernias do not exist. It may be, too, that prolapse of the rectum or an anal fissure may be a factor to be considered. It is not to be forgotten, also, that fever and cutaneous eruptions sometimes arise in children as the result of constipation. An important factor to be considered in treating these cases is that of heredity and conformation of the intestine. Children of gouty parents frequently suffer from atonic bowels, and in other cases the intestines and abdominal wall seem to be so relaxed as to predispose to this condition. The employment of sterilized milk also favors constipation, and the administration of farinaceous articles too early in life, by provoking dyspeptic troubles, may either result in diarrhea or constipation. The question of modifying the diet of the child, therefore, is of very great importance. If old enough to receive vegetable substances they should be given Graham bread, which leaves a large residue; the ordinary vegetables such as string-beans and peas, and from time to time mild laxative substances such as manna or cascara, should be given. Frequent exercise in the open air is also a necessity. Very frequently adding a little sugar to the milk, if the child is fed on sterilized milk, will prevent it being so

constipating in its effects. Massage of the abdominal area gently applied for a number of minutes morning and night, the skin being rendered oily by the use of vaselin, is also a method which is not to be forgotten. During the massage the fingers should knead the intestines as much as possible. Castor oil and magnesia, while active in moving the bowels, tend to produce constipation to a greater degree after their effects have passed off, although the author of this article believes that calcined magnesia is a useful substance to overcome dyspepsia and to move the bowel in certain cases. In other instances suppositories and rectal injections produce the best results, particularly suppositories that are made of glycerin. The quantity of liquid which should be used as an injection varies, but ordinarily one or two ounces is sufficient in young children; and if the bowel is not active cold water may be used in place of warm water, and the action of the injection may be increased by the addition of two to three dessertspoonfuls of oil of sweet almonds.

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#### THE TREATMENT OF THE FEVER OF GASTRO-INTESTINAL IRRITATION IN CHILDREN.

According to the *Journal des Praticiens* of January 9, 1897, GRASSET recommends the following:

℞ Calomel, 1 to 2 grains;  
Sugar of milk.

To be taken in a teaspoonful of milk.

Or, equally well,

℞ Calomel, 3 grains;  
Sugar of milk,  
Benzonaphthol, of each 3 grains.

This to be made into one powder and given every three hours in the milk.

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#### THE EMPLOYMENT OF DIGITALIS IN PULMONARY DISEASE.

According to an article by BLOCH, as quoted from *Vratch* by the *Journal de Médecine de Paris* of January 31, 1897, he has employed strong infusions of digitalis with advantage in the treatment of pulmonary disease, founding his method upon the statements of Traube and Petresco, who have administered from two to three grammes of digitalis a day. Bloch has given digitalis daily to thirteen children suffering from croupous pneumonia, as follows: To a child of nine months, four grains; to a child of a

year, five grains; to a child of two years, seven grains; to a child of three to four years, ten to twelve grains; to a child of ten years, fifteen to twenty grains.

The writer has never seen any accidents arise nor has he found that the digestive disturbances prevent the administration of digitalis to children. He believes that the remedy is of value in the treatment of pulmonary affections in this class of patients. A reduction of temperature is marked and continuous. The respirations are quieted, and by the administration of the infusion we avoid giving the active principle, digitoxin, which is so apt to produce poisonous symptoms. Bloch believes that the contraindications to the use of digitalis are very early infancy and extreme old age; persons over sixty years of age taking it badly. He believes rightly that these large doses must not be continued for long periods of time, and every few days they must be stopped.

[It is worthy of note in connection with this report that all statistics as to the usefulness of treatment of croupous pneumonia in children, in which death and recovery are used as the signs of value, are useless because the prognosis is almost invariably favorable in the croupous pneumonia of young children. As to the employment of enormous doses of digitalis in the croupous pneumonia of adults, we believe that its routine employment in these large doses is not justifiable.—ED.]

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#### THE TREATMENT OF FIBROID TUMORS OF THE UTERUS BY ICHTHYOL.

The *Journal des Praticiens* of December 12, 1896, recalls the fact that it has from time to time insisted upon the good results which are obtained by the use of ichthyol in certain cases of urethritis and gonorrheal vaginitis. Recently CHERON has obtained marked benefit from the employment of ichthyol in cases of fibroid tumors which were painful in character, using the drug in the form of a pomade or in capsules. The following ointment may be used:

℞ Neutral glycerin, 10 ounces;  
Ichthyo-sulphate of ammonium, 6 drachms.

If this ointment irritates the vagina the glycerin is to be reduced to seven drachms and the ichthyol to two drachms. Every night he has applied the following ointment to the abdominal walls, with considerable massage, and in the morning has the bowels moved by a large injection of warm water:

- B Extract of digitalis, 1 drachm;  
 Soft potash soap, 2 drachms;  
 Ichthyo-sulphate of ammonium, 2½ drachms;  
 Vaseline,  
 Lanolin, of each 1½ ounces.

After the administration of each meal he gives a pill containing one and a half grains.

#### THE TREATMENT OF DIARRHEA BY DERMATOL.

Dr. CLEMTAL, of Helsingfors, has experimented upon the action of dermatol in sixty cases of diarrhea dependent upon different causes, and in all of them obtained equally good results with those obtained by the use of opium and subnitrate of bismuth. The doses which he gave varied from four to seven grains, four to six times in twenty-four hours. In no case did he observe that the prolonged use of dermatol produced any inconvenient result.—*Journal des Praticiens*.

#### INJECTIONS OF CAMPHORATED NAPHTHOL FOR SARCOMA.

In *La Médecine Moderne* of December 16, 1896, FERNET records the case of a patient aged forty, who ten years before had suffered castration for sarcoma of the testicle and who had developed recently an adenopathy of the subclavicular and mediastinal spaces with obstruction to the venous circulation, particularly the superior vena cava.

Fernet asserts that injections of camphorated naphthol in the neck resulted in complete cure. Later symptoms of glandular involvement of the mediastinum reappeared, and injections of camphorated naphthol were made into the mediastinal glands, the needle of the syringe being introduced through the first intercostal space close to the sternum. This resulted in considerable relief.

[It is difficult to conceive that the diagnosis was correct.—ED.]

#### TRIONAL AS A HYPNOTIC.

The *Journal de Médecine de Paris* of January 31, 1896, quotes GOLDMANN as stating that in his experience trional is much preferable to sulphonal. Its action is much more rapid and certain. Furthermore he does not think that it accumulates in the system as does sulphonal, and that it does not strain the kidneys and intestines in its elimination, and finally that full doses of it are not so apt to produce hematoporphyrinuria as are full doses of sulphonal. He believes that trional is an exceedingly harmless hypnotic.

#### THE USE OF SUBCUTANEOUS INJECTIONS OF ARTIFICIAL SERUM IN ECLAMPTIC ALBUMINURIA.

In *La Presse Médicale Belge* of January 24, 1897, SOLÉ contributes a paper on this subject. He believes that massive injections of artificial serum should be given subcutaneously in all severe cases of toxemia. This method was first employed, he states, in 1855, when intravenous injections of salt water were given to combat cholera, and in 1873 the subcutaneous method was employed by Kartz in place of the intravenous procedure. In 1889 Dastre and Loye presented a communication to the Société de Biologie in Paris as to the effects of saline injections upon animals, and in 1890 Sahli of Berne attained great success in the treatment of a case of uremia by such injections; in 1893 Porak began using subcutaneous injections in eclampsia to diminish the toxicity of the blood-serum.

Charpentier at the Gynecological Congress in Geneva also recommended this treatment. Later Lejars and Tuffier obtained excellent results by similar methods, but insist that the kidneys must be intact if this method is to be of value. Most of these authors have been satisfied with injecting about half a pint a day.

The following case is interesting as an illustration of the use of this method: On December 7 a married woman, aged twenty-six years, and a primipara pregnant seven months, was attacked by severe pains in the epigastrium accompanied by nausea and vomiting, occasional headache, and no visual disturbance. She was somewhat stupid, semi-comatose, and she responded with difficulty to questions put to her. There was edema of the lower extremities, of the abdomen, and of the face, which had been present for about five days. The respirations were rapid and shallow, forty per minute; the pulse small, rapid, filiform, and 160; the temperature was raised. The urine was scanty and contained blood. Rapid analysis showed that it was loaded with albumen, and a more careful examination by means of Esbach's albuminometer showed that there was present three drachms of albumen to the quart. One and a half ounces of sulphate of magnesium and some bromide of potassium and chloral were administered by the mouth, and chloroform was given to the point of slight anesthesia. Professor Kufferath was called in consultation, and by the evening the patient was found to be in deep

coma and remained so three days later. An application of six leeches was made to the mastoid, and the subcutaneous injection of a small quantity of pilocarpine was resorted to. Later on two severe convulsions involving chiefly the face and upper extremities appeared, and inhalations of chloroform with one injection of pilocarpine were resorted to. Forty minutes later a third and general attack of eclampsia resulted, and chloroform was given again. Three-quarters of an hour later a fourth attack came on. This decided the physician in attendance to bring about artificial delivery, and the patient was given twenty grains of chloral and twenty drops of laudanum by the rectum. Shortly after this the patient began having attacks every half hour, but after a few paroxysms they gradually decreased, the chloral and chloroform being pushed. Twenty-four hours after the onset of the symptoms manual dilatation of the os was performed and a female child delivered; but two hours later the coma still persisted, respiration was stertorous, and the albuminuria was still present in excess; there was a febrile temperature, and the pulse was rapid. It was then decided to give four ounces of milk with fifteen minims of ether by the rectum, and this was given on two occasions at hour intervals. Later on one ounce of cognac was also added to this injection and repeated twice. The patient's condition, however, did not improve. On the third day after the attack commenced one pint of normal saline solution was injected into the subcutaneous tissues into the axilla of each side, and shortly afterwards catheterization removed from the bladder almost a pint of yellow urine, although the patient in the preceding twenty-four hours had only passed less than half this quantity. On the following day half a pint of fluid was injected into the left flank, and the urine on being measured amounted to nearly a pint. Later on in the same day another injection of half a pint in the right flank was given, and these injections then followed in half-pint quantities every three or four hours, with the result that at the end of twenty-four hours the patient's condition was much ameliorated; the temperature was not so high, the pulse much better, and the respirations nearer the normal. At this time it was noticed that there was a slight eruption upon the skin of the chest, which the author thinks was due to the elimination of the chloride of sodium. The patient ultimately recovered.

The difficulty in most of these cases seems to be that sufficiently large injections are not

given. One or two quarts can nearly always be given in twenty-four hours with advantage. The liquid should not flow into the tissues too rapidly, for on the one hand absorption would not be sufficiently active, and on the other the kidneys could not eliminate it.

Each injection should be given in a different place from its predecessors. The advantage of this method of administering saline fluid is that it has no difficulties or dangers, that moderate antisepsis only is required, that a vein does not have to be opened, and that there is no danger of air embolism or other forms of embolism taking place.

The suggestion of Bozzolo that the fluid be injected into the pleural or abdominal cavity is even more dangerous than venous injection; furthermore rectal injection gives very slow results and depends largely upon the ability of the bowel to retain the fluid. Solé believes that these injections should be employed not only in puerperal hemorrhage but also in puerperal septicemia, and mentions four cases of the latter condition which were saved by this method. He quotes one or two authorities, however, as stating that acute inflammation of the kidneys is a contra-indication to this manner of treatment.

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#### THE OPERATIVE TREATMENT OF PURULENT PERICARDITIS.

Bonn reports a case of the treatment of purulent pericarditis and quotes the observations of fourteen others in a recent article in the *Deutsche Medicinische Wochenschrift*. Of these fifteen cases, eleven were men and four women, and their ages ranged from thirty-three years to extreme youth. In three cases the pericarditis was primitive. In one case it resulted from an injury to the chest-wall with infection of the pleura. In another it came on in the course of acute articular rheumatism, and in three as the result of influenza. In five cases it resulted from infection from a suppurating focus, as for example osteo-myelitis. In eight of these fifteen cases paracentesis was performed one to three times; eight patients were cured and seven succumbed to the operation, the death being supposably due to shock. In Bonn's case the operation was performed without anesthesia because of the extreme feebleness of the patient, an incision being made in the third intercostal space about two and a half inches in length, through the tissues of the

chest, and into the pericardium. After the pus had been set free the cavity was packed with tampons of iodoform gauze and a compress applied. The results for good in this case were absolutely marvelous.

The author concludes that in cases of suppurative pericarditis an incision into the pericardium is absolutely indicated, and that under such circumstances an operation is just as obligatory as a tracheotomy or herniotomy when they are indicated.—*La Médecine Moderne*, Jan. 27, 1897.

#### ON THE INTRA-TONSILLAR INJECTION OF CARBOLIC ACID IN TONSILLITIS.

KRAMER is reported in *Schmidt's Jahrbücher* for January, 1897, as having employed parenchymatous injections of carbolic acid in severe tonsillitis, particularly where it was thought there was a tendency to abscess formation. The part is made completely anesthetic by the use of cocaine solution; a sterilized needle attached to a Pravaz hypodermic syringe is gently introduced into the gland, and through this is injected from one-half to one cubic centimeter of a two- to three-per-cent. solution of carbolic acid. This may be repeated once or twice a day. The same treatment has been employed by Höfer in Munich, with asserted advantage.

#### THE TREATMENT OF MALIGNANT TUMORS BY ERYSIPELAS SERUM.

*Schmidt's Jahrbücher* for January, 1897, quotes VON JAKSCH as having made the following report: He has tried erysipelas serum, made according to the process of Emmerich-Scholl, in five cases of inoperable sarcoma. In all cases after the injection there followed a severe chill, high fever, great pain, and in one case severe collapse, and in another acute nephritis. The author does not seem favorable to the further employment of this treatment.

#### AN INSTANCE OF THE UNTOWARD INFLUENCE OF FULL DOSES OF ARSENIC.

Dr. SCHIRLZERN has reported in *Schmidt's Jahrbücher*, January, 1897, having seen a case of a fifteen year-old child of a distinctly neuropathic tendency, with a history of articular rheumatism, who was suffering from chorea minor, the spasm involving the left sternomastoid and splenius capitus. Ascending

doses of Fowler's solution were ordered until very large doses were taken. At the end of thirty-two days as much as two drachms were ingested, when the patient developed herpes nasalis, and a day later a chill and high fever with herpes labialis, and laryngealis and paraesthesia of one side of the head.

#### TREATMENT OF BURNS AND SCALDS WITH PICRIC ACID.

In the *St. Louis Medical Review* of February 20, 1897, THOMPSON contributes a practical article on this subject. He begins by pointing out a fact well known to the readers of the *GAZETTE*, namely, that picric acid has been recommended by French surgeons as being the nearest approach to an ideal treatment of burns. It was subjected by them to several years of experimental use, and their reports have been most flattering. In his official capacity as Dispensary Physician of the St. Louis Health Department the writer has had large opportunities to thoroughly test the value of the drug. His experience consists of the study of some sixty cases—all emergency ones—and they presented a great variation as to cause and condition: they were burns and scalds from explosions of gasoline, gas reservoirs, lamps, contact with electric wires, hot water, hot tar, steam, molten metals, colored fires, etc. In all cases picric acid was used as a local treatment, and it was so agreeable to the patient and so successful from a scientific standpoint that there was no desire to return to the older methods.

Picric acid has long been known and valued as a laboratory reagent. It is one of the most valuable microscopical stains; it is the reagent in Esbach's quantitative test for albumen; and it appears in a pretty sugar reaction. Its properties are as follows: it is a local anesthetic, it coagulates albumen, is astringent and antiseptic. It can be applied in most any manner: the dry powder can be sprinkled on, or gauze compresses saturated with a solution of the acid can be applied; or, if the burn is universal, the body may be immersed in a bath of the solution. For minor burns we find it very satisfactory to allow the patient to procure some of the acid and bathe the surface every few hours or as often as pain returns. No toxic effects come from the absorption of the drug even if it colors the urine a deep yellow.

The acid is not very soluble in water, two drachms saturating a quart; the solubility can be increased by the addition of one ounce of

alcohol to a quart of water. For emergency work any amount of the acid can be added to the water, which being stirred is ready for use. The first and most gratifying effect of the acid is the almost instantaneous relief of pain, even in cases where the epidermis has peeled off, exposing the papillæ to the air. In most cases the pain will be entirely eliminated, and in all it will be reduced to a minor symptom. A remarkable fact is that the acid will prevent blistering if applied soon enough, and it will limit the blistering if it has already begun. The acid is a strong astringent, and it contracts the superficial vessels and consequently checks the escape of serum from them. Picric acid coagulates albumen. If the epidermis is disorganized by the heat the acid will fix it in a firm coagulated layer and healing will take place, as it were, under a scar. Healing under a scar is always a desired method of tissue repair.

The timely use of the acid is a great safeguard against suppuration, because it is antiseptic and because it contracts the vessels, thereby preventing pressure necrosis of the cells.

The effect of the use of picric acid is remarkable, and in the writer's experience of more than half a hundred cases he is convinced that its worth has not been exaggerated. The results are uniformly good; healing will be rapid, with little scarring or deformity.

There are a few practical points to be remembered: In the first place, the blisters which are formed should never be incised—it will expose the naked papilla to the air and increase the pain and danger of infection; they should be punctured and the serum forced out; the epithelium will then collapse on the corium, and rapid subcutaneous healing will follow. It is also wise to let the shreds of clothing which have been burned into the skin remain until the second dressing; the cloth will be burned and aseptized, and it will do no harm by remaining, while its removal can only be accomplished by stripping away the flesh. The cloth will act as a capillary drain into the skin and it will promote a permeation of the acid solution into the injured tissue. At a second dressing the thoroughly soaked fibres can be more easily removed.

It is a very noticeable fact that dressings soaked in a picric acid solution do not stick as fast as other applications; this may be due to the astringent effect of the acid on the secretions.

In handling the solution of the acid the hands of the attendant will be stained a deep yellow color; this unsightly staining can be prevented by a preliminary application of vaselin to the hands, and by a final scouring of them with soap and boric acid.

If suppuration takes place the dressings should always be of gauze or some hydrophile substance. Drainage is most essential. The writer has not experimented with picric acid in the treatment of pus cases and cannot speak of its value in such, but as an emergency first dressing of burns and scalds it has no equal.

#### MERCURIAL ALBUMINURIA.

In *Schmidt's Jahrbücher*, No. 1, 1897, is an interesting abstract of a paper by JULIUS HELLER upon this subject. This investigator examined 8000 specimens of urine derived from 201 syphilitic men, 79 syphilitic females, and 35 persons who were not syphilitic. As the result of the examination of the urine he found albuminuria in twenty-five of the men, and in the women marked albuminuria in four cases. In thirty-five cases of bubo, the urine of which was examined 636 times, a trace of albumen was only found on two or three occasions. The test commonly employed was Heller's. He found as a result of the administration of mercury to these persons that in no case was the albuminuria very marked, but that when nephritis was present and mercury was given albuminuria became much increased.

He quotes Lewin, who has used hypodermic injections 80,000 times with sublimate, as never having seen nephritis result, although he had seen a severe case of hemorrhagic nephritis occur, after the injection of the salicylate of mercury. It seems evident therefore that the bichloride is the preferable preparation for hypodermic injection.

#### ON THE MODERN NEGLECT OF LEECHING IN PRACTICE.

SIR DYCE DUCKWORTH, well known for his able "Treatise on Gout," writes in the *Liverpool Medico-Chirurgical Journal* for January, 1897, under this title. He believes that medicine is now suffering bitterly from a neglect of bedside study as compared to laboratory instruction. Bacteriology is now uppermost, and dominates everything. We gladly welcome all that comes to us in this channel, and should duly apportion it its place in the great



domain of pathology. If we lose our heads we may begin to think just now that all pathology is bacteriology, and that bacteriology covers the whole field of pathology. This, of course, is nonsense. Twenty years ago the danger was that we were becoming stereotyped in the belief that pathology was entirely displayed for us by high powers of the microscope. We now see that that was but a part of pathology, and have relegated the results of such investigations to their proper place in that science. In due time bacteriology will find its appropriate place, and we shall be in face of some further development which may again dominate the views of our successors. These ideas ought to be fairly regarded by us as each new discovery comes up to engross us. We must hold firmly by what we have each acquired, and build up a solid basis on which to rear cautiously worthy and dependable superstructures.

Duckworth is led to make these remarks by finding that the good old-fashioned employment of leeches has been allowed to drop out of our therapeutic armamentarium. So much is this the case that few practitioners are now aware of the value of the practice of leeching, and the pharmacists hardly think it worth while to keep leeches. Not many young practitioners could state correctly the amount of blood withdrawn by an ordinary leech, and a common view is that local blood-letting is generally unnecessary, and can be dispensed with in favor of some analgesic or antipyretic tabloid form of drug; further, that bleeding is a lowering and devitalizing process, and has no power in modifying the inflammatory conditions as now explained by the modern laboratory pathologist. Familiarity with local blood-letting enables the author to deny these assertions, and an ounce of practice is worth a pound of theory. He often teaches that when common sense and practice of medicine do not agree, he is sorry for the principles that determine the latter. He believes that ophthalmic surgeons still testify to the beneficial use of leeching in early inflammatory conditions. General physicians and gynecologists have lost this part of their art, and their patients are the sufferers in consequence. For acute pain such as ushers in acute pleurisy, pericarditis, and peritonitis, from any cause, there is no remedy so certain to afford prompt relief as local leeching. We may thus often withhold opium, and leave other symptoms to declare themselves without the masking effects of this drug. Two or three leeches will often accomplish this

result, and the blood lost hardly exceeds one ounce. In early typhlitis we may resort to this practice, and in many local forms of painful pelvic peritonitis. Much mischief in the future may thus be averted.

In cases of cardiac dilatation in an advanced stage, with hepatic and general venous engorgement, leading to respiratory distress, gastro-enteric symptoms—a veritable “agony”—the application of half a dozen leeches to the epigastrium is often of singular benefit, and brings prompt relief sooner than any other remedies he is acquainted with. In the face of facts such as these, to be certified in daily clinical practice, we may well ask why such a valuable method has been allowed to pass into desuetude. The answer is that other methods have come into vogue, all inferior really, but founded on more modern views of pathology. These methods do not stand the test of actual practice when duly compared with the older—call it “rule of thumb” or “routine” practice of our forefathers; but they have not been carefully compared, but allowed to drop out in the belief, perhaps honestly maintained, that a “more excellent way” had really been revealed to us in accordance with modern light.

With this plea in favor of this much-neglected method he closes his remarks, and hopes that he has done some good by expressing them. It is too often forgotten that our duty as physicians is to heal our patients if we can; and if we cannot bring back health, at least to alleviate to the utmost all suffering and discomfort as readily and certainly as we can.

In adopting any new method of treatment we have to keep our heads, to weigh most carefully the merits of such practice, and compare it honestly with the ripe experience and wise teachings that have come down to us from those who have preceded us, remembering that “our forefathers were not all fools,” and that the full light of midday is not perhaps yet shining upon us, even at the close of the nineteenth century.

#### SPRAYS AND INHALANTS.

BISHOP of Chicago in the *Medical Standard* for February, 1897, tells us that having devoted considerable time to the investigation of inhalants he has endeavored to arrive at definite results. We know well the action of nitrate of silver or sulphate of zinc when applied to mucous membranes, but accurate studies have not been sufficiently devoted to

the physiological action of the large number of inhalants offered for our use. It is worth while to consider briefly the results we may expect to obtain from a few of our most valuable medicaments that are convertible into sprays and vapors. Before applying local remedies to diseased surfaces their actions should be understood for the same reasons that no internal medicine should be administered without fulfilling a special indication for its use.

Before applying remedies to the throat and nasal cavities for the purpose of promoting a healthy action in the mucous membrane it is generally necessary to wash out those cavities with alkaline and antiseptic solutions in order to free the surfaces of discharges or crusts that defend the membrane from the action of our inhalants. Dobell's solution is the one most universally used. It consists of bichlorate and bicarbonate of sodium, 1 drachm each; carbolic acid crystals, 12 grains; glycerin, 2 drachms; water, enough to make 8 ounces. Seiler's antiseptic solution is also satisfactory, and is easily and quickly made by dissolving one of the tablets in two ounces of pure water. These solutions loosen and wash out the secretions and crusts so that the diseased membrane itself can be reached and medicated by our sprays and powders.

If we want a drying, detergent and protective spray, the pine-needle oil in a two-per-cent. mixture with lavolin will accomplish the purpose, and it is a most agreeable preparation. In those cases in which the mucous glands are atrophied and in need of a powerful stimulant to excite them to action, the four- or ten-per-cent. cubeb spray is very effective, especially when combined with the ten-per-cent. solution of camphor-menthol in lavolin.

There is a prevalent mistaken opinion that the cubeb spray is drying to the mucous membrane, while the opposite effect is the true one. It is a stimulant and disinfectant; it increases the flow of mucus, and if used in too strong a preparation acts as an irritant. Cubeb is useful as a tonic in chronic irritability of the pharynx and larynx, especially in the hoarseness of public speakers and singers.

Eucalyptus is antiseptic and destructive to low forms of life. It is a stimulating expectorant, and must not be used in very strong solutions or it becomes irritant. When combined with lavolin in the proportion of twenty grains to the ounce it is not too strong for the majority of patients, but it must be

avoided in some hay-fever patients, for they cannot remain in the room when it is being sprayed without suffering from paroxysms of sneezing. Carbolic acid combined with lavolin, twenty-two grains to the ounce, is valuable when the antiseptic and anesthetic effects are required. It is very useful in ozena, especially when followed with aristol insufflations.

Camphor and menthol contracts the capillary blood-vessels of the mucous membrane, reduces swelling, relieves pain and fulness of the head or stenosis, arrests sneezing, checks excessive discharges, and corrects perverted secretions. It possesses antiseptic qualities also. Since the introduction of this remedy by the author at the meeting of the Mississippi Valley Medical Association in 1891 it has come into quite general use for catarrhal conditions of the respiratory passages.

Although the writer did not recommend it until long after he had discovered that the union of these two camphors resulted in a fluid of the chemical formula  $C_{10}H_{18}O$ , and after becoming satisfied that we possessed a valuable remedy in this new drug, he is now able to express greater confidence and to verify former statements by the experience of others as well as by the daily use of it up to the present time.

The field of application in which camphor and menthol has proved most efficacious is in the following diseases: Coryza or acute cold in the head, hay fever, alternating nasal stenosis, hypertrophic rhinitis, simple sore throat, and acute inflammation of the larynx, trachea, and bronchial tubes. In office treatment he employs the ten-per-cent. solution in lavolin, throwing a copious vapor into the nose, throat or bronchi by means of the dilator or the universal vaporizer. For use with the Davidson or the lavolin atomizer the three-per-cent. solution is sufficiently strong, and for very sensitive patients, like hay-fever sufferers, it is better to begin with a solution not stronger than one or two per cent. Very gratifying results are obtained by prescribing these weak preparations for home treatment, especially on retiring at night. The lavolin is a bland and soothing protective to the membrane, and in the combinations indicated we have a most effective and harmless remedy. This means a great deal to both patient and physician, for many of the sprays in use afford indifferent results—or worse.

In diphtheria, croup, etc., in infants, when

it is very difficult to throw a spray into the throat, the medicine may be made to reach the parts by volatilizing it, by placing a few drops of the pure, undiluted camphor-menthol in a teakettle of hot water and causing the patient to breathe the medicated steam, or a few drops can be heated in a spoon over a lamp, and its fumes will impregnate all the atmosphere of the room. Enough medicine need not be used to cause uncomfortable smarting of the eyes. Inflammation of the throat, larynx, trachea and bronchi can be effectually treated by inhaling the camphor-menthol steam in this manner.

Much suffering can be prevented in people who take cold easily by using the pocket camphor-menthol inhaler. By taking a few inhalations from this simple instrument as soon as an attack of cold in the head is felt to be approaching, the symptoms are relieved. Patients who carry the inhalers in their pockets for timely use are able to prevent sieges of colds during the seasons when they have heretofore suffered repeatedly.

#### DIABETES MELLITUS.

Dr. ORD in the London *Practitioner* for February, 1897, in giving a course of lectures on renal diseases, also speaks of diabetes and directs as to its treatment. As he states the treatment of diabetes of the typical kind is generally laid down as follows: That you cut the patient off from every kind of aliment which may be broken down to form sugar; you take away, of course, sugar itself—cane sugar; you take away all starches as starches, and you take away sweet vegetables, potatoes, everything that contains the carbohydrates; and you put the patient on a diet which is mainly one of proteids and fat, including plenty of meat and green vegetables which contain no starch. You replace bread by gluten in some form, or by almonds variously prepared. These contain cellulose, and not starch, and do not yield sugar. In bad cases you are supposed not to give him milk, because of the sugar of milk. The diet thus instituted when carried out with completeness certainly becomes after a time excessively wearisome to the patient, for the craving after carbohydrates, always considerable, grows with the prolonged deprivation. It is an exaggeration of the diet which the late Mr. Banting used for taking down that fat which he called his parasite. Well, if you do your duty according to the usually received instructions, you will take care to carry this

out. When you have done it is not certain that you have done altogether the wisest thing, for, supposing you put a diabetic patient upon such a diet, you do not stop sugar in the urine; it still comes, although in diminished quantity, and it comes either from the breaking down of animal foods into sugar, or from the breaking down of the constituents of the body itself. And it appears to be also a very serious thing that we should be introducing into the system in such large proportion the nitrogenous foods which may become themselves sources of irritation of the liver itself and very often of the kidneys. It has long been for the writer a matter for very grave consideration whether we are not in the habit of carrying this restricted diet too far. You will remember that, after all, the presence of the sugar is in one sense a very undesirable thing; in another sense a symptom of something which you cannot reach, a symptom possibly of some condition of the central organs which may be actually in itself injuriously affected by such diet. It must be admitted that the sugar is not altogether a symptom; it is, no doubt, an irritant, but still one cannot help keeping the other possibility in mind.

A few words may be said next regarding the treatment of diabetes by drugs. So far as is known the more marked cases are not curable in spite of many assertions of cure. But something can be done to reduce the excretion of sugar and to help the sufferer. We owe to Dr. Pavy the important help afforded by codeia. Experience has taught us that opium has a power of diminishing glycosuria and of controlling many of the accompanying distresses. Opium, however, has the drawback of exerting a constipating influence, while regular action of the bowels is desirable. Codeia possesses the moderating power, and is less prone to produce constipation. It may be given with advantage in doses of one-half of a grain twice or three times a day. Arsenic, perchloride of iron, the mineral acids and mercury have their supporters, but are mainly applicable to the relief of particular accessory symptoms—*e.g.*, of skin and nerve troubles, of anemia, and of disorders of digestion.

#### MALIGNANT DISEASE OF THE STOMACH.

In the London *Practitioner* for February, 1897, DOUGLAS POWELL, after discussing the subject of malignant disease of the stomach, concludes his article by giving particular attention to treatment. He says: "You can

do very little in the way of treatment, except of the palliative kind, in these cases. In the case of scirrhus pylorus, where there is obstruction and dilatation of the organ, you can do very much to keep your patient going by washing out the stomach, and then giving a meal of peptonized beef-tea, which it would rapidly absorb. In encephaloid disease you must be very wary how you inject fluids, because you have to deal with a soft, disintegrating mass, and you are apt to bring about perforation or hemorrhage by distending the stomach with fluids. When the patient ceases to be able to take food by the stomach without very severe pain, you can still keep him free to a certain extent from the pangs of starvation by rectal feeding; and you can keep him more or less from suffering by a sufficient amount of morphia. Cancer is one of those diseases in which you are completely justified in keeping your patients under the influence of sedatives such as may be necessary to secure their freedom from suffering. A small subcutaneous injection in the forenoon and a larger one in the evening will often keep a patient comparatively happy. In cases of ulcerative cancer you will do even better by giving by the stomach small doses of morphia at frequent intervals—such quantities as one-eighth of a grain of morphia."

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*REMARKS ON THE TREATMENT OF BUBONIC PLAGUE.*

It is to be hoped that only the foreign and colonial readers of the *GAZETTE* will have reason to read this article for the purpose of putting its suggestions in practice, and fortunately but few of those will, we trust, be so tried in their professional work; but the statements of CANTLIE in regard to the therapy of this historic disease cannot be ignored by any of us who are interested in medicine. He tells us that when the patient is first seen the foul state of the tongue, the foul breath, the jaundiced tinge of the conjunctivæ, and a generally bilious aspect, suggest a purge. For this purpose calomel in five-grain to ten-grain doses recommends itself. This is to be followed by a saline in some five hours' time. Against this treatment it may be argued that the drain upon the system and the lowering action of calomel are deleterious, but if given quite early in the disease and not when the pulse is flagging, it undoubtedly seems to do good. It frequently stops vomiting, which is often present; it clears away the jaundiced aspect, it restores the power of taking nour-

ishment, and it seems to diminish mental aberration and cardiac distress. If a full gall-bladder justifies the exhibition of calomel, post-mortem evidence of that condition is not wanting. So far as is known, bacilli of plague escape from the body in greatest numbers by the bowel. In the breath, sweat or urine bacilli are but sparsely met with, but in the feces a rich supply is found. This points to the necessity of ample disinfection as being requisite for all latrines, bedpans, closets, etc., but it also proclaims as justifiable and rational the attempt to assist Nature in expelling the poison of plague by a free action of the bowels.

From the very first onset, or certainly after twenty-four or forty-eight hours, it will be found necessary to stimulate the plague patient by food, by alcohol, or by medicine.

Unless actually delirious there is not usually much difficulty in feeding plague patients. In fact, in comparison with allied ailments, the appetite is wonderfully good. One encourages this in a general way, but the occurrence of sudden death supervening after the ingestion of a bowl of rice, for example, and its accompaniments, in the case of Chinese patients on several occasions, leads one to the belief that a full meal is not without its danger. The heart is in such a condition that it takes but little to disconcert its rhythm, and the pressure consequent upon a full stomach is calculated to do this. Food should be in small quantities frequently repeated and of a kind which is easily digested. Extract of beef, in fluid or jelly form, is excellent. Ox-tail soup, mutton broth, beef- and chicken-tea should be constantly on hand to suit the varying palate of the patient. Conjee water—that is, the water in which rice is boiled—is useful as a drink and serves as nourishment. Milk with ice (sipped slowly) and ice cream (Lowson) are particularly grateful.

Thirst is at times a marked symptom, and its relief should be attended to by allowing the patient anything in reason. Ice to suck, if not kept up too long; water or lemon and water (not lemonade) to drink, if not in such quantity as to distend the stomach; beer and stout (iced), especially for Europeans, is "at once stimulant, soporific, nutritious, and thirst-quenching" (Lowson). Brandy or whiskey diluted with not more than three or four times its volume of water (not aerated waters) should be freely supplied. When the pulse shows signs of failing, or collapse or faintness supervene, then of course alcohol is doubly

beneficial, and brandy is preferable to whiskey as a cardiac stimulant.

When active the delirium of plague is best combated by cold to the head. Leiter's coil would be perhaps the readiest method, provided the patient could be kept still, but an ice-bag or a constantly wetted cloth is efficient. These applications combined with tepid sponging of the body at frequent intervals seem grateful to the patient, are useful means of reducing temperature, and seem the safest and readiest method of quieting active delirium.

In most cases, but not in all, hyoscine administered hypodermically in doses of  $\frac{1}{100}$  of a grain is perhaps the most efficient and safest of the hypnotics. It calms the nervous system and induces sleep when everything else fails. Hyoscine should be one of the first drugs in the armamentarium of a plague hospital.

At times nothing but morphine administered hypodermically in doses of one-eighth to one-fourth grain is of avail. *A priori* one would not select it as a hypnotic or anodyne, but experience has proved it to be reliable, and not so unsafe as to exclude its use. It is almost certain that when painful adenitis complicates the cerebral intoxication, morphine effects its purpose. The safest method of administration is in combination with atropine.

An occasional dose of bromide of potassium during delirium is useful and without danger, but prolonged use is not permissible.

An occasional looseness of the bowels should not be stopped unless it continues over twelve hours and the patient seems exhausted thereby. It is but seldom obstinate, and yields to salol in ten-grain doses, or to an enema of starch and opium; or, still better, a suppository of morphine and cocaine, one-fourth grain and one-half grain respectively, more especially when continued straining persists (Lowson).

Vomiting frequently ushers in an attack of plague, and may persist throughout the illness. When the latter condition obtains it is an unfavorable sign, as loss of strength ensues owing to the rejection of food and medicines. A mustard plaster to the epigastrium, ice to suck, and an effervescent draught of a few drops of hydrocyanic acid and liquor morphinæ are generally sufficient to check this untoward symptom (Lowson).

Pyrexia no doubt accounts for some of the delirium, the restlessness, the headache, and subsequent collapse. Hyperpyrexia is excep-

tional. The usual chemical antipyretics, antipyrine and phenacetine, are such severe depressants that they are at a discount and should not be used. Should hyperpyrexia necessitate its use, one hypodermic of antipyrine is no doubt justifiable as a last resource. Frequent sponging with tepid water, ice to the head and nape of the neck, iced drinks, and a short application of the wet pack, with the administration of brandy by the mouth or by the rectum, are useful when promptly and rationally used.

Flying blisters of mustard to the limbs, abdomen, and over the heart are useful. Smelling-salts and strong ammonia applied to the nostrils often succeed in restoring the pulse, rousing the patient in collapse, and not infrequently cause him to rally from what seems a moribund state (Lowson). Nor is this kind of stimulation of mere passing effect, for in several instances when death seemed inevitable and at hand patients have revived and actually recovered permanently.

Stimulation by hypodermic injection of ether is a treatment that gives grateful response, and must be used freely and frequently. The collapse from plague does not take place at that period of the disease when organic structures are played out, but it occurs early in the disease, in two or three days, and is therefore more of a functional or toxic than of an organic nature; consequently the use of stimulants in any form is more likely to be attended by remedial results and not by a mere temporary flicker of response.

Internally the form of drug most useful is either a general stimulant such as ammonia, or a cardiac tonic or specific.

The prescription of every practitioner who treats plague will be found to be one in which carbonate of ammonia and the tincture or decoction of cinchona are met with, and with this mixture, now given, now withheld, will be exhibited digitalis, strophanthus, or camphor. More good is ascribable to ammonia in some form than to any other known and more specific drug.

Digitalis in infusion, tincture, or in leaf, the latter perhaps the best, seems the one drug called for when the pulse becomes dicrotic and the nervous stimulation of the heart gives out. In practice, however, it is unsatisfactory, and seldom can any good results be traced to its administration. No doubt the slowness of its action is against it; but, what is still more, positive evidence is against its being considered a reliable drug in an acute illness like plague.

*Strophanthus* is in the same category with *digitalis*.

Camphor in its double action, as a direct cardiac stimulant and a stomachic carminative, is useful as an alternative drug. Undoubtedly the best form is in pill in doses of two grains. Camphor may advantageously be used hypodermically dissolved in sterilized oil. Caffeine also is worthy of a trial.

Musk, in the few cases treated therewith, seems to justify its administration, and it is a form of circulatory stimulant which one welcomes as an addition to one's resources. The musk, as fresh as can be obtained, may be given in five-grain doses every six hours as an expedient.

Strychnine administered by the mouth or hypodermically is of the greatest use. Granted that a functional abeyance of the nervous influence, more especially of the heart, is the essence of the toxic effect of the plague bacillus, strychnine ought to be a drug of importance in the treatment. This expectation was borne out in practice, and Dr. Lowson in his report, and all who have reported on the treatment of plague, regard strychnine as a most reliable agent in the form of stimulation required in plague. Liquor strychninæ in five- to ten-minim doses given every four hours is the most convenient form; but when vomiting is present a hypodermic solution of  $\frac{1}{8}$  of a grain of the sulphate of strychnine in ten minims of distilled water is advisable.

Other drugs may be mentioned, but though useful as a change and a standby on occasions, they do not justify more than a passing notice. Among the more important are: quinine when malaria complicates the disease, as evidenced by a large spleen; aconite in the early stages, when high fever and a full pulse are present. Chloride of ammonium as an alterative is occasionally useful.

The inhalation of oxygen (Lowson) is not to be neglected, and the gas ought to be always at hand and ready for immediate use.

The result of experience gained by local, radical, or tentative treatment of the glands does not lead one to expect much benefit therefrom. That abscesses should be opened when they point, or when fluctuation is perceptible, is of course natural; but that local remedial steps should be undertaken for the purpose of affecting the course of the disease by acting on the gland is, from what we know of the pathology of the disease, scarcely rational. Injection of a swollen gland when it is accessible, as in the groin, with such

substances as carbolic acid, perchloride of mercury, or a solution of the perchloride of mercury and iodide of potassium, has perhaps a theoretical basis of justification, but practically little good can be ascribed to it. The latter-mentioned solution may have a higher claim, as in several cases in which it has been administered temperature falls and the patient seems easier. It may be, however, that the mere pricking of the tense capsule of the gland, even by needle punctures, may serve to relieve tension and thereby pain. This leads one to the belief that subcutaneous incision of the gland may be attended with beneficial results, and it is a method of surgical procedure not without precedent. Early free incision of the gland is not to be recommended, nor can excision be in any way justified. The disease is a polyadenitis, and of so extensive a nature that eradication of infected glands is an impossibility. A gland when swollen, red, and painful may be smeared with glycerin and belladonna, or poulticed to relieve pain; and when fluctuation is perceptible it should be opened, but further procedure is useless. When pus is evacuated, dusting the wound with iodoform and ensuring thorough drainage are the means by which the best results are obtainable.

Retention of urine, a frequent concomitant during the delirium of plague, renders the use of the catheter imperative.—*British Medical Journal*, Feb. 14, 1897.

#### ABDOMINAL HYSTERECTOMY COMPLICATED WITH DOUBLE OVARIOTOMY: RECOVERY.

PFEIFFER (*Boston Medical and Surgical Journal*, Feb. 11, 1897) details an interesting case of abdominal hysterectomy as follows:

The patient, an unmarried woman between thirty and forty years of age, came to the writer for examination in May, 1896. She had been examined by him in the spring of 1893, at which time she was (examination without ether) supposed to have three small fibroid tumors of the uterus. Examination now revealed one large tumor, the size of a football, solid to the touch, and a second smaller one, the size of the fist, in front of and below the first. Both seemed closely adherent to each other, firm on manipulation, and moved with the uterus as one mass. He supposed two of the fibroids found three years before had gone on enlarging, and had obscured the third.

The patient was operated upon in June,

1896. She was in the Trendelenburg position. An incision was made from above the umbilicus to the pubes, and the large tumor on coming into view proved to be an ovarian cyst. In passing the hand around the cyst to see if adhesions existed, it was ruptured at its pedicle, and a brownish fluid with black flakes escaped into the abdominal cavity. This was rapidly flushed out with sterilized water; and an incision in the collapsing cyst wall drained off the remaining fluid over the edge of the abdominal incision, the cyst wall being drawn up to overhang the abdominal wall. The cyst was freed of adhesions by dissecting off with the thumb-nail about nine inches of small intestine, after which the pedicle could be secured in the usual manner and the cyst wall cut off.

The right side furnished a slightly adhering and easily detached ovarian cyst the size of a very large kidney, which had a pedicle easily ligated and divided. The uterus had attached to its fundus a fibroid tumor the size of a fist, and it was amputated at the level of the internal os in the manner originated by Dr. John Homans. The broad ligaments were tied off as low as possible with two ligatures on each side, one inch apart, care being taken to avoid the bladder; and the broad ligament was divided on both sides between the ligatures; then peritoneal flaps before and behind were made and reflected back. The uterine arteries were ligated by the aid of an aneurism needle; the uterus was divided by a V-shaped cut, forming anterior and posterior flaps, which were brought together over the stump.

The abdominal cavity was flushed out; the incision was sewed up; gauze and rubber tube were used for drainage, extending from the fossa of Douglas to the lower end of the incision.

A hand-to-hand fight with shock in which figured brandy, strychnine, digitalis, nitroglycerin, and oxygen, followed for twenty-four hours, after which the patient rallied and made a steady and complete recovery. The drainage was gradually removed, and the patient was up in four weeks, and in six weeks went East for the summer.

November, 1896. Patient has gained twenty pounds, and is in perfect health.

#### EXTRA-GENITAL CHANCROID.

KREFTING (*Norsk Magazin for Lægevidenskab*, 1896) records seven cases of extra-genital chancroid. These cases were due to

autoinoculation from a genital ulcer, were placed over the sternum, the back of the hand, right thumb, right side of the breast, the left middle finger, and the left forearm.

Diagnosis was confirmed by microscopic examination.

The seventh patient exhibited only a soft chancre on the right index and had no history of venereal ulcer.

Diagnosis was confirmed by autoinoculation and finding the microbe.

Fournier states that soft chancre of the head is moderate in extent, superficial, solitary, and quickly heals.

Diagnosis can be made only by autoinoculation.—*Monatshefte für Praktische Dermatologie*, bd. xxiv, No. 1.

#### THE OPERATIVE TREATMENT OF CANCER OF THE RECTUM.

TAYLOR (*Annals of Surgery*, vol. xxv, No. 4) summarizes as follows his contribution to this special branch of surgery:

1. Great care should be exercised in the selection of cases for operation. Cancers which have exceeded the limits of the bowel and have acquired adhesions to neighboring parts had better be left alone.

2. The preparatory treatment deserves our utmost attention, having as its object the improvement of the patient's general condition, and as great a degree of intestinal asepsis as it is possible to obtain.

3. Free purgation, intestinal antiseptics, and rectal irrigation cannot have a really useful effect so long as there exists an ulcerating cancerous surface swarming with virulent micro-organisms. The use of the curette whenever possible, followed by irrigation, should accompany the other measures.

4. A preliminary colotomy can scarcely be recommended as a matter of routine. It appears to be chiefly indicated when attempts to empty the intestine and cleanse it have either been impossible or attended with difficulty.

5. We should consider a certain number of types of rectal cancer, both as regards their site and extent, with a view to determining the methods best suited for their removal.

6. Three cardinal rules are suggested as applicable to all cases: (1) Control bleeding as much as possible. (2) Let the principles of aseptic surgery be as strictly observed as the field of operation will admit. (3) Avoid rough manipulations in the separation of the disease; let it be effected for the most part by a process of careful dissection.

7. The perineal operation is best employed for ano-rectal cancers—that is, for cancers which involve the sphincteric zone and extend for some distance above it.

8. If possible, the rectum should not be split in its removal nor should the finger be introduced to serve as a guide in its separation. Elastic ligatures should be applied and sterilized gauze placed beneath before it is cut.

9. Cancers situated in the suprasphincteric region had better be removed by the sacral method. As contrasted with the perineal, it gives more room, bleeding is more easily controlled, separation of the disease is more readily effected, and it gives the best functional results.

10. Temporary sacral resection should not be entirely disregarded, owing to its manifest advantages over the more extensive mutilation of Kraske and Bardenheuer.

11. If, when the cancer is excised, it is found that the upper healthy segment descends easily, an attempt to suture it to the anal margin is worth making, having previously removed the mucous membrane from the lower segment.

12. In cases where the ends of the bowel have been united after removal of the cancerous segment, it is well not to close the sacral wound completely for fear of accidents.

13. For cancers situated high up, as well as for those of wide extent in the rectum, the formation of a sacral anus is often the only means at our disposal.

14. In such cases it appears wise to follow the advice of Gersuny, and give the bowel a twist on its long axis before attaching it to the skin, the object being to establish a modified sphincteric apparatus.

15. The perineo-abdominal and sacro-abdominal operations are grave; they involve serious risks, and can only be required in very exceptional cases. However, we must encourage attempts which help to extend more widely the indications for complete removal of the disease, and such as are suitable for those desperate cases in which the palliative treatment afforded by an artificial anus has hitherto been our only resource.

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INDICATIONS FOR THE USE OF THYROID EXTRACT IN GYNECOLOGY AND OBSTETRICS.

CHERON (*Revue Médico-Chirurgicale des Maladies des Femmes*, Dec. 25, 1896) holds that thyroid extract is an excellent remedy

in threatened abortion with hemorrhage, is valuable in preventing the arrest of uterine involution after childbirth, and that it is potent against the premature return of the monthly periods; moreover, it is a valuable galactagogue. Thyroid extract, in other words, stimulates the mammary secretion, while it lessens functional activity of the uterus. In gynecology it has proved valuable in the control of all forms of uterine hemorrhage, whether these be due to tumors or lesions of the adnexa.

It is contraindicated in tuberculosis, since this seems to be stimulated rather than arrested. In heart disease, even though thyroidin is strongly indicated, it should be administered with the utmost care and should be stopped at once upon the first suggestion of tachycardia. Symptoms of thyroid intoxication or tachycardia are oppression, exophthalmos, and irritability. In certain cases the drug produces rapid emaciation. Sometimes gastric vertigo has been observed.

Because of the difficulty experienced in procuring the fresh gland and the repugnance which patients exhibit in digesting it, it is well to administer it in the dry form prepared by druggists. This may be administered in tablets, pastilles, or capsules, in doses of one-twelfth of a grain twice daily before meals. After a month there should be an interval of eight days during which the drug is discontinued, followed by a three weeks' course of the medicine. If indications still exist for its employment a rest of two weeks is given, followed by two weeks of the drug.

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IMPORTANCE OF PREVENTIVE THERAPEUTICS OF SYPHILIS.

Prof. E. LANG of Vienna ascribes great importance to the prompt arrest of syphilis with preventive therapeutics. In an article in the *Wien. Klin. Rundschau* of January 3 he remarks that internal mercurial medication cannot be prolonged to the necessary extent, owing to injury to the digestive apparatus and the lack of precision in the doses, as it is impossible to determine the exact amount of mercury that passes through the intestines unused. Inunctions have the same disadvantage—the lack of exactness in the dosage and the varying rates of absorption in different people. Subcutaneous injections are therefore more reliable than any other method, and can be graduated to the case. The selection of the preparation is of great importance and requires discrimination, and



it is necessary that the physician should be familiar with the different therapeutic methods. But whatever method is selected, the chief point is to limit the mercury and not administer too much. The mercurialization must be mild. Inunctions and injections with full doses do more harm than good. The eruptions may be postponed, but the later manifestations are inevitably more severe and prove unusually obstinate. A mild preventive mercurial treatment, combined with a rational mode of life and observation of hygienic measures, is one of the most precious therapeutic measures in our possession. The imminent danger of subsequent tabes, which he connects closely with syphilis, renders preventive treatment almost imperative, and the favorable results of mild mercurial therapeutics, especially in his private practice (private patients can be traced much more easily than hospital cases), have impelled him to urge its importance upon all anew.—*Journal of the American Medical Association*, Feb. 20, 1897.

#### NASAL OBSTRUCTION AND THE SYMPTOMS OF CARDIAC DISEASE.

GEORGE ROE LOCKWOOD, in the *New York Medical Journal* of January 16, 1897, concludes a practical paper on nasal obstruction and the symptoms of heart disease as follows:

1. It is highly probable that patients with cardiac disease are more subject than are others to nasal obstruction.

2. Nasal obstruction occurring in a patient with cardiac disease may upset the balance of respiratory compensation and produce decided symptoms.

3. Unless care be taken these symptoms may be mistaken for those of failing compensation, and may lead to a gloomy prognosis and a faulty treatment.

4. Unless the nasal obstruction be properly relieved and the patient allowed a sufficient quantity of good air, the arterial spasm may possibly occur, throwing an increased amount of work on the heart, already handicapped, and may become a factor in inducing dilatation. The effect of the poor quality of the blood thus supplied to the endocardium must also be taken into consideration.

5. Nasal examination made during the day may not reveal the actual obstruction, which is most apt to appear at night when the patient is recumbent and the circulation is in its most sluggish state. To the congestion of the posterior portion of the inferior turbinated

bodies thus induced the characteristic nocturnal attacks are to be ascribed through the medium of asphyxia and arterial contraction. Nasal examination, however, usually reveals extreme vaso-motor irritability of the turbinated bodies.

6. In cases of cardiac disease, including angina and pseudo-angina pectoris, no estimate of the patient's condition can be made and no rational treatment can be inaugurated without a thorough examination of the patency of the upper respiratory passages.

#### THE USE OF INFILTRATION ANESTHESIA.

MEHLER (*Centralblatt für Chirurgie*, No. 9, 1897) has used the infiltration anesthesia in 250 major and minor operations, including herniotomies, laparotomies, resection of ribs, ligatures of vessels, and transplantations. The three solutions he colors with various dyes so that they can be distinguished from each other. He employs a larger syringe than that generally used, and one which can be sterilized by boiling. He is thoroughly satisfied with the method.

It is interesting to note in reference to cocaine anesthesia that Tito Costa has found that employing this solution at a temperature of 120° F. produces immediate anesthesia even in minor concentration (one-half per cent.). For the purpose of testing this method he performed a radical operation for the cure of bilateral hernia. On the left side there was omental hernia. The warm cocaine solution was injected, a little more than half a grain of the drug being employed in all. The patient did not experience the least pain. On the right side there was hernia of the colon. Cold solution of cocaine was employed. Incision of the skin was painful, and nearly twice as much of the drug was employed to produce anesthesia, which even then was not entirely satisfactory. The author has contrived a special apparatus for the purpose of keeping the cocaine at a high temperature. This is practically a water-bath.

#### TWO CASES OF LAPAROTOMY FOR ACUTE INTUSSUSCEPTION.

Dr. J. COLLINS WARREN in the *Boston Medical and Surgical Journal* of February 11, 1897, submits reports of the two following cases as examples of successful treatment of this affection by opening the abdominal cavity and reducing the invagination by taxis. Th-

is now known that the escape of bile into the peritoneal cavity is not of necessity a source of danger. The mechanical irritation caused by its presence may give rise to a serous exudate, but bile is markedly antiseptic in its nature, and many cases have been reported in which bile remained free in the abdominal cavity for days or even weeks without giving rise to peritonitis.

The task, then, which the surgeon is called upon to perform in cases of traumatic injuries of the liver is to check the hemorrhage as soon as possible, and to prevent the retention of bile in the peritoneal cavity on account of its liability to cause cholemia. Various methods have been used to produce this desired result. Rest was, of course, the method earliest employed; later came the era of antiphlogistic treatment with the accompanying vesication and venesection, and to-day one wonders at logic which could support such remedies. Of direct applications compression by means of tamponade was the simplest, most primitive, and quickest method used. Then came the thermo-cautery, and within recent times direct suture of the wound as in other parts of the body. It is to this latter method that Dr. Schlatter especially directs his attention.

The literature on the subject is not very extensive. Postempski, in 1892, reported five cases in which recovery occurred after the wound in the liver had been sutured. Operations by Adler, Smits and Von Eiselberg gave good results with this method. Burkhardt, however, regarded the method of suture as available only in those cases where the wound is a superficial one; if too deep to be included in the track of the needle he advocates the use of iodoform-gauze tampons, so arranged that fibrinous exudate after a few days would form a canal leading to the surface of the abdomen for the escape of bile and wound discharge. Langenbuch performed the operation of fixation of a "wandering liver" by passing a row of sutures through the entire thickness of the right lobe and then fastening them to the cartilages. Adler reported a case of stab-wound of the liver where, in spite of the use of sutures, hemorrhage still continued, and tamponade was finally necessary. Hochenegg, after the removal of a tumor from the liver, preferred to treat the wound extraperitoneally, and supported the upper and lower edges of the wound by sausage-shaped rolls of iodoform gauze, held in place by deep mattress sutures. Von Bergmann removed an adenoma of the

liver and checked the bleeding by drawing the wound together with silk sutures and tying them over strips of iodoform gauze placed along the wound. The sutures were left in place for some days, and finally carefully removed. Korte had a case in which a gunshot wound of the liver was cured by iodoform gauze tamponade of the wound. Other writers cited are divided in their preference between the thermo-cautery and the tamponade with iodoform gauze.

Dr. Schlatter adds to these cases five more of his own. A summary of these is as follows:

1. Stab-wound of the liver; prolapse of the colon and omentum; profuse hemorrhage from the liver; wound about one inch wide and so deep that the finger-tip failed to reach the bottom; two deep sutures of heavy catgut and two capsular sutures of fine silk; recovery.

2. Gunshot (revolver) wound of the liver; severe hemorrhage; three deep sutures of heavy catgut checked the bleeding, and a good recovery was made.

3. Gunshot wound of the liver by Flobert projectile. The track of the bullet involved the stomach, the jejunum, the pancreas, and the left kidney. Patient seventeen years old, and liver tissue was friable. Six deep silk sutures stopped hemorrhage; death after eight hours.

4. Rupture of the liver and right kidney two days before operation; extreme anemia; laparotomy; suture of liver; hemorrhage stopped; saline infusion; death.

5. Almost complete sagittal rupture of the left lobe of the liver. Profuse exudate of bile into peritoneal cavity. Laparotomy and suture of the liver fourteen days after the injury; death.

In only one of these cases (3) was there a tendency of the sutures to cut through the tissues. In this case silk instead of catgut was used, and the tissues were more friable than in the other patients, who were all adults. The results so far as the checking of the hemorrhage from the wounded liver was concerned must be regarded as satisfactory. The combination of deep catgut sutures of large size with fine silk superficial sutures of the capsule is recommended, and will be used by the writer in the future. In view of the success attending the first of these cases the objection of Burkhardt to the use of sutures, in any other than superficial wounds does not appear to be valid.

The fact that it is possible to completely close the abdominal cavity after the use of

sutures in wounds of the liver adds materially to the clinical value of the procedure.

That large bleeding vessels in the parenchyma of the liver may be ligated directly has been shown by Clementi's experiments upon animals, and by Smits's and Von Bergmann's operations.

Where the wound is a large one, as after the removal of a tumor, the combination of sutures, mattress sutures and tamponade may be necessary; but as a rule the tampon should be used only in cases where sutures have failed to check the hemorrhage. Of the three methods the thermo-cautery is of least value; it will check only moderate parenchymatous hemorrhage, is of no value in extensive wounds, and is apt to be followed by secondary hemorrhage.

Another important question remains to be considered in this connection. However summarily the surgeon may act in gunshot or stab-wounds of the liver, there remains a class of cases in which the diagnosis is often very difficult, and the proper course to pursue is uncertain. These are the cases of subcutaneous rupture. Of course, if after a severe injury to the abdomen in the region of the liver there gradually develop the symptoms of internal hemorrhage, if the pulse becomes more rapid and small, and if the patient grows more and more anemic, if the area of liver dulness on percussion is increased, if pain referred to the scapular region develops, or icterus begins to appear, the diagnosis is easy. Unfortunately for physicians, cases where the symptoms are so well marked are very rare. Such violence as is caused by the kick of a horse does not by any means always result in an internal lesion. Fatal cases have been reported of this character where the autopsy revealed an acute peritonitis and no other internal injury. On the other hand, slight accidents may give severe results—for example, the mere fall upon the ice. The cause of rupture of the liver may be an indirect one, as is strikingly shown in a case reported by Rezek, where the victim fell a short distance, striking upon the feet; death was shown to have been caused by a rupture of the liver and of the great vessels at its base. Aside from the size of the organ, the slight elasticity of its tissue, its method of attachment, and its weight, are important factors in the occurrence of rupture.

The symptoms of internal hemorrhage may also easily be confounded with those of shock arising from slight contusions of the abdomen. Changes in the heart or in the brain

will give a similar clinical picture to the one produced by bleeding—thready or absent pulse, deathly pallor, superficial or irregular breathing, and marked mental depression with restlessness. A differential diagnosis in such cases may be impossible, and time only will show the actual condition.

To diagnostic uncertainty must be added the other considerations which add to the surgeon's perplexity. Certain cases of ruptured liver have gone on to a spontaneous recovery without surgical intervention. Even if an operation be performed, the occurrence of liver-cell emboli may set at naught the best efforts, and the more severe and extensive the laceration the more apt is such a misfortune to occur.

In view of these facts would it not be better for the surgeon to sit idly by and allow the patient to await his fate?

To this important question most operators will answer "No," and maintain that it is the duty of the surgeon in such cases to adopt the course that offers the greatest number of chances of success to the patient. If an operation be performed and a slight injury found, there is of course a very slight possibility that spontaneous recovery could have taken place. On the other hand, if the liver is found almost pulpified by the severity of the trauma the patient would die in any case. Between these two extremes lie a great number of cases of varying severity. The decision must be given in favor of an exploratory laparotomy. If occasionally such an operation is performed with no discoverable necessity, the surgeon can at the present time easily justify the procedure as being on the side of safety. How much more will be the censure if he has failed to realize the gravity of the case, and has either operated too late or not at all?

The time of operation is to be determined by the fact that the sooner it is performed the more apt it is to be successful. For the surgeon the only question of doubt is regarding a possible unnecessary operation. With the practicing physician the decision is much easier. If there is the slightest indication that there may be a rupture of the liver, the decision of a surgeon should be at once obtained in order that no valuable time may be lost. The diagnosis will often be cleared up in the meantime, and an operation may be performed with the least possible delay.

The only remaining question to be considered is the one, What portion of the abdominal wall offers the best site for the operative

incision? The upper portion of the liver, hemmed in as it is by the costal framework and by the diaphragm, is in a bad position for surgical access. The left lobe and the irregular and concave under-surface is, on the contrary, most accessible. By moderate traction the anterior portion of the convexity can usually be brought within reach, and in a similar manner even the almost inaccessible posterior parts can occasionally be operated upon. In one case reported above (Case 4) Schlatter was thus able to suture the lobus spigelii. Division of any of the ligaments of the liver, with the possible exception of the suspensory ligament, which is of little or no hindrance to an operation, is scarcely to be contemplated. The use of tension will therefore be of but little assistance in moving the organ to any given site of operation.

In penetrating wounds the existing wound can be enlarged and converted as far as possible into the incisions about to be described. If the site of injury is in the left lobe, or is undetermined, a median incision should be made; in wounds of the right lobe a curved incision along the lower border of the costal cartilages and to the right of the rectus muscle is to be preferred. In some cases these may be combined, thus forming an angular incision. Since by far the greater number of wounds of the liver are located on the ventral or lateral aspects of the viscus, these two plans of attack will nearly always suffice. In wounds situated posteriorly the lumbar incision is hardly to be recommended on account of the thickness of the muscular walls, and the fact should be borne in mind that, as reported by Lannelongue, the thoracic wall can be resected along the anterior portions of the eighth, ninth, tenth, and eleventh costal cartilages, for the pleura does not extend down to this part of the chest-wall. The method of Lannelongue consists in an incision parallel with the thoracic border and two centimeters above the same, beginning three centimeters from the border of the sternum and ending at the junction of the tenth rib with its costal cartilage. The retraction of the divided muscles exposes the costal cartilages to be resected; they are carefully freed from their attachments and cut through with cartilage scissors. Then, if the ends of the ribs are retracted and pressed apart, nearly the entire extent of the convexity of the liver can be made accessible.

It seems probable that if these practical suggestions of Dr. Schlatter are adopted as a basis of treatment, not merely by surgeons

but by the practicing physician as well, the prognosis in injuries of the liver will in the future be much more favorable.—*Annals of Surgery*, April, 1897.

#### THE PATHOLOGY AND THE SURGERY OF INTUSSUSCEPTION.

In the Hunterian lectures delivered recently before the Royal College of Surgeons of England, d'Arcy Power (*British Medical Journal*, Feb. 13, 1897, p. 381) stated that the evidence derived from anatomic, physiologic, pathologic and clinical data renders it legitimate to assert that spontaneous ileocæcal intussusception occurs when the colon is considerably larger than the ileum, and is so unduly movable that it readily allows itself to become invaginated when once the process has begun. This variety of intussusception is essentially an affection of childhood, and such an undue increase in the width of the colon implies either a congenital abnormality or an unduly rapid growth, for at birth the diameter of the large intestine is practically the same as that of the ileum. Such a rapid increase in the width of the large intestine may, perhaps, in some instances render the ileocæcal valve less competent to guard the end of the ileum, because the valve is not capable of very rapid growth if it is to be firm; but this is probably a factor of very rare and subordinate importance. Though anatomic peculiarities are important factors in the production of intussusception, the physiologic factors are no less important, for they apply in all probability to every form of spontaneous invagination, whether it is of the enteric variety, the ileocæcal, or the colic. The physiologic factor is much less easy to specify than the anatomic, for it is almost certainly an individual peculiarity. It may be stated broadly, however, that as regards the ileocæcal portion of the intestine the increased mobility, coupled with the unduly rapid growth in the width of the large intestine, is probably associated with increased and irregular peristaltic movements of the large intestine. Every one who has had much experience in watching children must have noticed how subject they are to an irregular twitching of the muscles, and how greatly such incoordinate movements vary in different children and in different families. They are most common at the instant when the child drops off to sleep and during the act of awakening. They occur both in the voluntary and the involuntary

muscles, and are due, as physiologists think, to a contraction of the interfibrillar sarcoplasm, while the ordinary tetanus and twitch are caused by an additional shortening of the contractile fibres. This theory explains why the symptoms of intussusception so often appear at the instant when a child awakens; why it is that boys rather than girls, and the most active and best-grown children, are attacked as often as those who suffer from chronic inflammatory affections of the alimentary canal. The muscular system in the active and well-grown is undergoing its greatest development, and its sarcoplasm is in as unstable condition as in the puny, in whom the attacks of enteritis have unduly heightened the irritability of the intestinal muscle, and have thus led to the irregular twitchings which, together with suitable anatomic conditions, may form the starting point of spontaneous intussusception. The cause of intussusception is obscure, but clinical evidence shows that it may be produced mechanically, though the spontaneous form is the more common. Among such mechanical causes are direct injury to the belly, sudden and violent muscular efforts, gymnastic movements, jolting or dandling, paroxysmal coughing as in whooping-cough; or it may even be the reward of greediness, as in the cases of some men who were suddenly seized with symptoms of intussusception shortly after eating a quantity of cherries—stones and all. It is indeed no matter of surprise that such causes should produce an intussusception, for any of them might lead to a sudden and limited constriction of the intestine associated with an active peristaltic movement of a neighboring portion sufficient to draw the receiving layer of the gut over the contracted portion, which then becomes the apex of the intussusceptum. As soon as the intussusception has been started, the anatomic peculiarities again become of paramount importance, for they determine the character of the intussusception. In the ileocæcal forms a wide colon, with few and simple ileocolic folds devoid of lymphatic glands, will allow the intussusception to run a chronic course, even though the amount of bowel invagination is very great. Complex fossæ, with numerous glands at the ileocolic angle and prolongations of mesentery along the end of the ileum, will no doubt so far steady the ileum as to render its intussusception less likely; but if it should occur the additional amount of tissue invaginated will

render the impaction so peculiarly tight that, if gangrene is not produced at once, early adhesions will be formed and the intussusception will soon become irreducible—*Medical Record*, April 3, 1897.

#### PNEUMOPEXY.

Prof. C. BAYER, of Prague, states in the *Centralblatt für Chirurgie* of January 16 that he was performing an operation on a thirteen-year-old boy for the extirpation of a large sarcoma of the right thoracic wall, when the pleura adherent to the sarcoma in one place suddenly tore. The laceration was tamponed, when it tore again and the patient began to collapse. The larger tear was sutured, the portion of the sarcoma already detached was removed, and the wound left open, with iodoform dressings. The operation was resumed and completed three days later, when the pleura tore again, and this time the lung collapsed entirely and sank out of sight. The patient was succumbing when Bayer seized the superior lobe of the collapsed lung with a pair of forceps and drew it out of the thoracic cavity through the large hole in the pleura, and fastened its lower border by three sutures about three centimeters apart to the periosteum of the sixth rib, which was immediately above the end of the tear in the pleura. The patient revived at once, and "we saw the upper part of the lung breathing regularly." The inferior lobe remained collapsed, but he refrained from attempting to suture this likewise, as he considered it best to utilize the opening for drainage. The after-results were good. Dyspnea appeared only when the dressings were changed, and he thinks that if he had been able to fasten the inferior lobe also no dyspnea would have occurred. The superior lobe continued its respiration to its full extent, and the lung did not seem to be at all injured by the suture. The patient is now (twenty-seven days after the final operation) recovering finely. The wound is healing perfectly, with a deep depression corresponding to the defect. He considers himself justified in recommending the process of fastening the lung in this way as a simple means to restore this vital organ to its functions, when in cases of extensive injury to the costal pleura it is impossible to put an end to the pneumothorax by merely closing the wound with all haste. It is simpler than the method proposed by Tuffier and Hallion, who have succeeded experimentally in similar cases by artificially filling the lung with a-

through the larynx or trachea. Their experiments on dogs were encouraging, but the operation has not yet been applied to man.—*Journal of the American Medical Association*, Feb. 20, 1897.

AN IDEAL SUTURE FOR THE CLOSING  
OF ABDOMINAL INCISIONS, CUTS  
ON HANDS, FACE, AND BODY  
GENERALLY.

HAUGHEY in the *Journal of the American Medical Association* of February 20, 1897, advocates the following method of suturing abdominal incisions, cuts on the hands, face, and body generally:

The ideal suture is one that, first, can be most readily and easily introduced; second, that holds the parts in perfect apposition with the least possible interference to the circulation of or at the edges of the wound; third, that is the least apt to become septic; fourth, that requires the least possible amount of suture material; fifth, that leaves the least possible scar; sixth, that can be relied upon to fulfil these requirements, and after fulfilling them can be removed.

The old interrupted *en masse* suture, while fulfilling the first requirement of introduction well enough, utterly fails in all the rest except the last, viz. removal; for by including the tissues from one-half to one inch on each side of the wound and tying them the circulation is materially interfered with, thus preventing healing and promoting sepsis by reducing the blood-supply and depriving Nature of its best means of keeping the wound disinfected and promoting its rapid repair.

The buried animal suture is objectionable because of its proneness to become septic despite our very best efforts at cleanliness and antisepsis.

In silkworm-gut and silver wire we find the nearest approach to the ideal suture material that science has yet produced; they can be rendered aseptic, and when so rendered are almost absolutely non-irritating to living tissues. The problem is to so introduce them that they will meet the six requirements above stated. The writer has solved this problem thus: With a straight sharp-pointed needle about one and three-quarters to two inches in length, threaded with silkworm-gut (of the very best variety), he begins at the lower angle of the peritoneal incision on the left side, and with a simple spiral

continuous suture rapidly closes the entire peritoneal cut, bringing the end of the suture out about one and one-half inches above the upper angle of the incision in the skin, passing it through a thin aluminum plate and fastening by means of a perforated shot; then threading the needle on the other end, he brings it out and fastens in the same manner about the same distance below the lower angle of the wound. Do not make too much tension, but fasten just tight enough to avoid a slack suture.

In exactly the same manner introduce the suture in the muscular aponeurosis; here you may, if the cut is long, with advantage use silver wire about No. 23 or 24, as it is probably stronger and can be left as long as necessary with no danger of disintegration, though silkworm-gut may be left in five weeks safely. The skin suture is introduced in the usual manner of a buried skin suture, with the ends fastened as described. It will thus be seen that the first or peritoneal suture will be the longest and will be fastened farthest from the extreme angle of the cut at each end; the muscular suture is second longest and fastened in the centre at each end; the skin suture shortest and fastened nearest the incision at each end.

No difficulty will be experienced in removing either the peritoneal or skin suture if they have been properly introduced; simply grasp the shotted lower end and lay the open blades of the scissors on the aluminum plate, draw on the suture, make contour pressure with the scissors until about one inch of suture is withdrawn; then clip, grasp the other end, and draw the long or remaining end of suture out. The muscular suture will be found to offer in many cases much resistance, and if too strongly pulled on will break. This is not necessary. Simply draw what will come easily and fasten by means of a split shot and wait twenty-four hours, when you can easily draw more; fasten and leave again, and so on until the entire suture is removed.

The author has been using this suture for the past year in cuts, wounds, and operations about the face, hands, or any part of the body. It leaves the least possible scar, offers the least possible interference to circulation, thereby promoting the healing process; can be left indefinitely, can be readily and easily removed, and in fact possesses all the requirements as yet known of an ideal suture. Only the very best, smoothest and strongest silkworm-gut should be used.

*TREATMENT OF FRACTURE OF THE CLAVICLE BY MASSAGE.*

DRAGON (reprint from the *Jour. de Méd. et de Chir. Prat.*) publishes the results of massage applied to twenty cases of fracture of the clavicle, under the care of Lucas-Championnière. The ordinary treatment of this lesion by bandages and slings is held to be unsatisfactory, as it is very difficult by such appliances to keep the fragments at rest and in good position, whilst the functions of the shoulder and elbow are liable to become impaired for some time in consequence of prolonged immobility. The author practices a daily massage not only at the seat of fracture, but also of the adjacent joints and muscles, and insists particularly on massage of the deltoid muscles and careful movements, both active and passive, of the shoulder. In the intervals the upper limb is supported by a sling. Consolidation of a fractured clavicle is usually effected between the eighteenth and twenty-fifth days from the date of injury; and at the end of this period the patient, when treated in the manner described by the author, is able to use the limb freely, as the main object of such treatment is to prevent articular rigidity, and to preserve the full muscular functions.—*British Medical Journal*, March 20, 1897.

*TOO MUCH MAJOR OPERATING IN GYNECOLOGY.*

In these days when the medical profession is devoting so much attention to the major operations on the female pelvic organs, operations looking to the removal of the uterus, ovaries or tubes, or to their fixation in more or less abnormal positions in the body, it is not amiss, in the interests of conservatism at least, that we should pause a little and emphasize certain fundamental principles of gynecology—such as making a careful investigation in every case of the particular points in which the pelvic structures differ from the normal, and then endeavoring to restore them as far as possible to that normal condition.

The medical journals are full of the descriptions of new operations, a vast majority of which have for their object either the removal of organs or an improvement on Nature's handiwork. Operators wish to "build up a perineum," or to stitch the uterus to the abdominal wall or to the bladder. It does not seem to occur to the ingenious originators of these procedures that they

are undertaking a large contract in trying to improve on Nature. Instead of taking a receptive and scientific attitude and trying to search out Nature's methods, they assume knowledge and declare that they can do better.

When a prominent operator advocates "slipping out" a uterus because it is sub-involuted and the seat of endometritis, and another operator is in favor of amputating the cervix as a routine procedure instead of performing trachelorrhaphy, it may be that these practitioners are doing the best that can be done for their patients under the circumstances; at all events it is fair to assume that they think they are doing so. But a large body of the profession will always query, "Why should a woman lose her uterus or have her cervix cut off, with all that these mutilations imply, because the operator finds it easier to remove structures than he does to take the time and trouble necessary for the proper understanding of the more tedious and less brilliant methods of repair?"

When tyros in the art of diagnosis, emboldened by the lessened mortality of the present aseptic technique, rush into major operating the interests of the patient suffer. Many of the hospital operators and teachers help these tyros to a knowledge of the steps of certain operative procedures only to find these same men coming back to them after a longer or shorter period and saying: "Doctor, I know how to do such and such an operation, but I can't tell in what cases it is indicated, and my results have been bad." How much more rational to begin at the beginning!

We believe that the diagnostic skill of the average practitioner in this department of medicine is constantly improving; but to be convinced that there is room for still further improvement the doubter has only to follow for a short time one of the out-patient clinics of a metropolitan hospital and hear there from the patients some of the diagnoses made and treatment advised by a large number of practitioners, all of whom probably are not always incorrectly reported. We are credibly informed that, even now in this enlightened age, a considerable number of patients presenting themselves at our hospital clinics for treatment for injuries of the pelvic organs due to child-bearing tell the old story that their doctors did not examine them after the puerperium. In other words, their medical attendants are pursuing the old policy of trusting to luck, perhaps fearing censure for

injuries<sup>7</sup> discovered, but more likely too busy to do their work thoroughly.

Early recognition of bad tears of the cervix and of the pelvic floor, inflammatory affections of the endometrium and tubes and ovaries, dislocations of the uterus and ovaries that do not right themselves in a reasonable time, if discovered and treated promptly not only do away with the need of many operations but will prevent a large number of patients from becoming debilitated and neurasthenic—conditions of body and mind from which operations alone, be they ever so successful, will not lift them.

We should welcome a return of gynecology to its older and more natural channels. The profession at large, dazzled for the time by the brilliant feats of abdominal surgery, should not forget that gynecology is something besides abdominal surgery; and the general practitioner should be ready to follow the specialist, prepared to investigate and treat the diseases of the female pelvic organs according to well-founded principles of the art. —*Boston Medical and Surgical Journal*, April 1, 1897.

#### THE TREATMENT OF VARICOSE VEINS.

JOHN O'CONOR, in a letter to the *Annals of Surgery* for April, 1897, proposes the following treatment of varicose veins:

After ten years' operative experience the author has come to the conclusion that nothing short of total extirpation of the diseased portion of vein merits the term "radical."

In numerous instances he has performed the orthodox operation—*i.e.*, removal of many bits—and he regrets to say that in a considerable percentage the cure has by no means been permanent.

On referring to one of our most recent standard works, "An American Text-book of Surgical Science," he finds the treatment of this very common complaint is dismissed in some six lines, and he takes the liberty of quoting the following paragraph: "The radical treatment has for its object the complete obliteration of the vein. Many surgical procedures have been devised for this purpose. Of these methods multiple ligature, as advocated by Dr. Charles Phelps, who ties the vein in thirty or forty places, and excision of the vein in six, eight, or more places, are the best." It is needless to mention that neither of these operations can be really described as radical, for complete obliteration does not necessarily follow even forty ligations or the removal of even a dozen pieces.

In the operation that he has practiced for the past year and is about to describe no potential element remains, for the very simple reason that the offending portion of the vessel is removed in its entirety.

The limb having been shaved and disinfected from Poupart's ligament to the ankle, a two-inch incision is made over the saphenous opening, and the internal saphenous trunk is doubly ligated and divided; if no varicosity is present above the knee the wound is closed and dressed at once with iodoform gauze. If the femoral portion is affected, after ligation at saphenous opening, the vein is dissected up and its tributaries seized with pressure-forceps and ligated. In nearly all cases, if varices are present above the knee there are also some below, consequently the incision is prolonged downward directly over the vessel until the lowest limit of the disease is reached; the vein is then tied and divided below. In some cases an eighteen- or twenty-inch incision is necessary.

If the disease does not extend above the knee, after occluding the saphenous trunk as described above an incision is made over the affected portion, a ligature is applied above and below, and the whole mass removed by dissection. It is surprising how easily and rapidly the latter maneuver may be carried out. Of course, all branches are caught up with pressure-forceps, and when the main channel is removed they are ligated. As frequently the external saphenous vein is also affected, its varicose portion is dealt with in a similar manner. To any one unaccustomed to a ten- or twenty-inch incision this plan may appear formidable, yet if the vessel is ligatured above and below the varicose area there is not the slightest danger of emboli or pyemia, and as for hemorrhage it is so trivial that it does not deserve mention. In a recent severe case he removed twenty-six inches of the internal saphenous, and certainly the blood loss did not exceed two ounces. He has also employed this method in removing large thrombosed veins occurring in the first few months of pregnancy; in this class, above all others, it is particularly necessary before manipulating the diseased portion to occlude the main well above the seat of the disease, so that if thrombi are dislodged they cannot pass into the general circulation.

The time occupied in executing this method certainly does not exceed that of any of the nibbling processes. As to primary union, he



finds these long wounds heal just as kindly as do the short ones, and with ordinary surgical cleanliness there is nothing to be feared. The insertion of a strand of iodoform gauze as a drain to every four inches of wound is a useful precaution, for it does away with the risk of any blood collections. Personally, he fears the presence of stagnant blood in wounds more than the germs; where the former is doubtless the latter will gain access.

No bad results have so far followed this method, and all the patients appear grateful.

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*A CASE OF REUNION OF TENDON NEARLY FIVE YEARS AFTER ITS DIVISION, WITH GOOD RESULTS.*

WORSLEY (*British Medical Journal*, March 20, 1897) presents a case of unique tendon reunion nearly five years after its division.

L. B., a cook, in 1890, when aged thirty, broke a window and cut her right wrist badly. The wound was six weeks in healing, some fragments of glass working out. The thumb, index finger and middle finger afterwards became firmly flexed into the palm. A year after the accident the tendons of the index and middle fingers were cut down upon and reunited by suture, with good result, after long extension on splints; the extension movements of the index finger, however, remained weak and imperfect. In December, 1895, the thumb was strongly adducted and flexed into the palm. The extensor primi internodii and extensor ossis metacarpi pollicis had escaped division, but the extensor secundi internodii pollicis had been cut, and its retracted ends could be obscurely felt in the scar tissue on the radial side of the wrist.

On January 16, 1896, the writer cut down on the scar, having made the limb bloodless, and found the ends of the tendon separated by one and a half inches of fibrous tissue traversing the scar. This band contained in its centre some gelatinous-looking substance, which on microscopic examination proved to consist of a few genuine tendon bundles running through the fibrous material. It was impossible to bring the ends of the true tendon together without splitting them, and to make as strong union as possible an inch only of the fibrous band was excised and the ends were approximated by one stout and two fine silk sutures. Rigid antisepsis was aimed at, and the forearm and hand placed upon a splint, with the thumb overextended on a wire

arm. The wound healed by first intention. There was very severe pain for a long time up the forearm and arm, owing to stretching of the flexors, which had been so long contracted. This pain had prevented continuous extension preliminary to operation. Morphine gave but little relief, and insomnia was troublesome. After a week very gentle passive movement for a minute or two was begun and kept up daily, the thumb being kept overextended on the splint.

Three months after operation the thumb became loosened from the splint in the night, and contracted towards the palm, but not to the former extent. It was secured and always kept on the splint, except when exercised and galvanized daily.

In June, 1896, improvement continued but slowly. If the bandage was taken off the thumb became flexed and adducted to beyond the line of the index finger. Movement in the direction of extension was stronger, however. There was still some pain in the forearm.

In October the patient could leave off the splint for fifteen to twenty minutes, and use the thumb a little. She was advised to take the splint off frequently and exercise the muscles. The current from ten cells was used. On October 27 she wrote a letter, using the thumb. On November 1 the splint was off for three-quarters of an hour, and she had a light steel spring attached to the thumb, riveted to a leather wrist-strap, which exerted a pull equal to three ounces. The tendon could be distinctly felt, with some thickening at the site of union. Since the operation the extensor indicis is much stronger, which is attributable to the disturbance of the adhesions throughout the old scar which then occurred.

At the time of writing—November, 1896—the thumb is practically as good as the other one, except for a little weakness, and the patient will very soon be able to dispense with all artificial support.

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*APPENDICITIS IN CHILDREN.*

Mlle. GORDON (*Thèse de Paris*, No. 101, 1896-7) deals with this affection on the basis of upwards of eighty cases treated by Broca during a period of three years at the Hôpital Trousseau; seventy have not been previously published. The proportion of boys and girls was nearly three to one (fifty-eight to twenty-one); five were aged between two and five, twenty-five between five and ten, and forty-one between ten and fifteen years. Broca

operated in seventy-two cases with a mortality of thirty-five per cent. The resection of the appendix was performed in thirteen cases after the inflammation had subsided, in all with rapid and complete success; and in five cases during the acute attack, with three deaths. The mortality, including the cases not operated on, was thirty-two per cent. Mlle. Gordon concludes that pathogenesis from a closed cavity is not applicable to the appendicitis of children, in whom calculous or inflammatory obliteration of the appendix is rare; the predominant anatomical lesions are perforation and gangrene. Only two distinct forms of acute appendicitis are to be distinguished clinically—that in which the peritonitis, though purulent, is encysted, and that in which it is generalized. The elective treatment for the former is, in benign cases, resection of the appendix after the inflammation has subsided. When the intervention is one of necessity an inguinal incision or one along the external border of the right rectus should be made, but no search for the appendix. When the case is one of general peritonitis with a local iliac focus, median and lateral laparotomy is indicated.—*British Medical Journal*, March 20, 1897.

**APYRETIC INTRAPERITONEAL RUPTURE OF HYDATIC CYST IN THE LIVER.**

The case described in *La Province Médicale* of December 19, 1896, presented the usual symptoms—sudden pains radiating in the abdomen, syncope, increase in volume of the abdomen, urticaria, vomiting, and slight pleurisy of the right base, but no fever at any time. Professor Jaboulay performed a supra-laparotomy, which gave issue to a large quantity of fluid apparently slightly tinged with bile. The operation was followed by Mikulicz's marsupialization, with strips of iodoform gauze reaching to the cyst in the liver. The discharge of intraperitoneal fluid continued for two months, while the general health and appetite were good. A month and a half after the laparotomy the cyst was punctured and quantities of bile escaped with the hydatid liquid and also fragments of the hydatid membranes. Pieces of the membrane came away for three weeks and were removed with the forceps, when the wound was dressed every day. As the discharge decreased the opening healed, until only a small fistula remains after three months. The presence of bile in the liquid after both

operations shows that there must have been some communication with the biliary passages, and the bile as it entered the cyst must have killed the parasite. The case also illustrates anew the extreme tolerance of the peritoneum for the hydatid liquid and the bile when they are both aseptic.—*Journal of the American Medical Association*, March 20, 1897.

**TO DIFFERENTIATE APPENDICITIS FROM ACUTE CATARRHAL SALPINGITIS.**

VINEBERG notes that the pains are more violent in appendicitis but more strictly localized, without radiating pains, while in catarrhal salpingitis, especially if the ovaries share in the inflammation of the tubes, the pains radiate toward the thigh. The alarming symptoms also show a noticeable remission toward the third or fourth day, which is a useful point in deciding dubious cases, as the alarming symptoms in appendicitis may persist and increase in intensity. If differentiation is impossible the patient should be examined in narcosis. The treatment of appendicitis should be prompt operation, while in salpingitis a waiting policy should be preferred, as it often heals spontaneously without the necessity of an operation.—*Journal of the American Medical Association*, March, 1897.

## Reviews.

TWENTIETH CENTURY PRACTICE: AN INTERNATIONAL ENCYCLOPEDIA OF MODERN MEDICAL SCIENCE. Edited by Thomas L. Stedman, M.D. In 20 volumes. Volume IX: Diseases of the Digestive Organs. New York: William Wood & Co., 1897.

Ten contributors cover the eight hundred and odd pages which compose the ninth volume of this very notable work. Of these ten only four are Americans, namely, Dr. Gibney, New York; Dr. J. B. Murphy, Chicago; Dr. Alfred Stengel, Philadelphia; and Dr. Walker, New York.

The first article, on Diseases of the Mouth, is by Mikulicz and Kümmel. It covers ninety-one pages of the book. The next article, upon Diseases of the Intestines, extends from page 95 to page 271. That upon Hernia covers eighty pages; that upon the Spleen, by Dr. Stengel, covers fifty-six pages; the article on the Liver 350 pages; that upon the Gall-bladder sixty pages; and that upon Movable Kidney about twenty pages. The article upon Diseases of the Intestines is by

Dr. Ewald of Berlin, well known for his work in clinical medicine and by reason of the fact that he is editor of one of the best, if not the best, of the German journals, namely the *Berliner Klinische Wochenschrift*.

Drs. Gibney and Walker contribute the article upon Hernia. The article upon Diseases of the Liver that we have named is written by Semmola and Gioffredi and, as we have pointed out, is the most exhaustive in the volume.

Dr. Murphy contributes the article upon Diseases of the Gall-bladder, and Dr. Franks that upon Movable Kidney. It will be noticed that this volume passes from the consideration of diseases of the mouth to that of the intestines and discusses in no way whatever diseases of the stomach, a subject, however, which has already been thoroughly covered in the tenth volume of this Encyclopedia, which we reviewed some months ago and which appeared in literature prior to Volume IX by reason of unavoidable delays, we presume on the part of foreign contributors.

Volume IX in every way maintains the good opinion which was produced by an inspection of the preceding volumes, and the series is undoubtedly one of the most notable which has appeared for many years.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by Hobart A. Hare, M.D. Volume IV. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1897.

Six years ago, when the first two volumes of this System appeared, it was stated that they were designed to present the medical profession with the latest and best views of prominent practitioners as to the proper treatment of the diseases commonly met with by practicing physicians, and the object of this volume, which is complete in itself and yet which forms a supplement to the earlier volume, is well described in the preface which we append:

"The fact that the System of Therapeutics edited by the undersigned met with a most cordial reception on the part of the medical profession indicated that at that time some exhaustive and authoritative representation of practical and modern treatment was needed; and the advances made in this department of medicine have been so great within the last five years that a single volume embodying the present views of the most experienced men in all branches of medicine seems again desirable.

"In the preparation of this volume the Editor has kept in mind the fact that it must bring to each reader the personal methods of its various contributors rather than discuss every plan of treatment which has been introduced, whether it be commonly employed or not.

"Too often works composed of the contributions of many writers vary greatly in the value of the articles and in the professional standing of their authors, and too often these contributors are largely residents of one district and therefore mirror peculiar local views or measures, so that the work fails to convey the results or the methods employed by men meeting with ailments under various climatic conditions. The wide geographical distribution of the authorities who have written these articles prevents any such fault.

"Again, bare suggestions that this drug or that be given in the presence of certain conditions is not what the practicing physician wants. He desires definite directions as to its dosage and its prescription, and he wishes to know how the author himself would use the remedies he commends if he were at the bedside. For this reason a large number of illustrative prescriptions are included in the text.

"The promptness of the various contributors in sending in their articles and the rapid work of the printing office enable the Editor to present the most recent ideas as to rational therapy, and he desires to express his appreciation of the courtesy of his collaborators in this very considerable undertaking."

A HAND-BOOK OF MEDICAL CLIMATOLOGY. By S. Edwin Solly, M.D., F.R.C.S. Illustrated. Philadelphia and New York: Lea Bros. & Co., 1897.

This octavo volume of nearly 500 pages has been written by a physician who for many reasons has devoted the best years of his life to the study of the remedial influences which climate can exercise upon disease, particularly the diseases which affect the respiratory tract. Dr. Solly therefore brings to the author's pen a large amount of original research and practical experience, two attributes which are essential for the successful preparation of a volume which deals on the one hand with the most important remedial measures that we can institute, and on the other with a subject about which we all know comparatively little and many of the profession know nothing. Further than this, the writer has steered his craft of author-

ship safely past the rock of ultrascientific observation on which it might be wrecked for all practical purposes, and has also kept away from an equally disastrous collision with the cliffs of quackery and the danger of transforming an attempted scientific book into a guide-book and advertising medium for health resorts. As it is Dr. Solly has presented us with a clear and lucid summary of what is known of climate in relation to its influence upon human beings, and then has passed on to a consideration of the effects which it produces upon invalids. The first chapter is devoted to the principles of medical climatology, and after reading this a clear understanding of this important subject can be gained by any intelligent reader, be he medical or otherwise. He then discusses the physiology and ethnology of the subject, and in Chapter IV considers the geographical distribution of disease and then the classification of climates.

In the second section of his book after an introductory chapter he deals with phthisis, the forms of phthisis as influenced by climate, and the results of the treatment of phthisis by climate. Finally, in this section there is a chapter upon the forms of disease other than phthisis which are benefited by climate. The third section of this book deals with the health resorts of North America, Mexico, South America, Europe, Africa, and those of many island climates.

The volume is illustrated by quite a large number of colored plates showing the rainfall in different seasons and different regions of the United States, and by other relief maps showing the geographical arrangement of the surface of the various continents, with particular reference to those spots which are commonly resorted to by invalids. These plates we think add very materially to the value of the volume, as do also the numerous foot-notes and tables which are found on many pages. The practitioner of medicine, in distinction from the doctor of medicine who does not practice and who is interested in matters medical purely from a scientist's standpoint, desires when he picks up a book to obtain information which will directly aid him in benefiting his patients. This book will be found of value to this particular class of medical men, and the author has been so successful in his accumulation of facts that the non-practical class of readers, if such a class exist, will do well to study his pages for the purpose of keeping themselves abreast of climatological learning.

## Correspondence.

### LONDON LETTER.

By RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.

Following close upon the remarks we made in our last letter on Durham's paper on Peritoneal Sepsis, we have some interesting observations in the April number of the *Practitioner* by Watson Cheyne on the injection of anti-streptococcic serum as a prophylactic in cases of operation involving subsequent sepsis, as for instance in operations on the tongue and throat and rectum. All the three cases related were cases of removal of extensive cancerous growth involving more or less widely the mouth and fauces. It will be remembered that in his recent Lettsomian lectures Watson Cheyne laid great stress on the occurrence of septic pneumonia as the great obstacle to success in such cases, and also referred to the danger of secondary hemorrhage from sloughing after ligature of the external carotid. In the first of the three cases injections of antistreptococcic serum were administered on the two days preceding operation: this was the first case in which no sloughing occurred on the surface of the wound, while there was a complete absence of the common febrile reaction, and no symptom of septic pneumonia. Healing was complete and rapid. In a second similar case, injections of twenty cubic centimeters of the serum were given on the two days prior to operation, and ten cubic centimeters a few hours before the operation. Here again there was a remarkable absence of any septic trouble, and indeed the wound in the skin healed by first intention, while the mouth wound healed rapidly by granulation. In a third case as much as ninety cubic centimeters of serum were injected on the four days previous to the operation, and the progress of the case was in every way favorable, when a fatal issue was determined by the detachment of a thrombus from the lingual artery, which was carried into the brain. In all these cases there was also a remarkable absence of the fetid breath that is so commonly present in these cases as a result of local putrefaction. If this antiseptic value of the serum should prove to be constant, one great obstacle will be removed from the successful performance of these extensive operations on parts where it is impossible at present to keep sepsis at bay.

Professor Bradbury, of Cambridge, reports another case of angina pectoris treated with erythrol tetranitrate. The observations are of especial value as made by the patient, who was himself a medical man. The liability to the anginal attacks had become so constant and severe as to necessitate the constant use of nitroglycerin in anticipation of even the slightest physical or mental exertion. At this juncture erythrol tetranitrate was commenced in one-grain doses, and although the reaction to nitroglycerin had become exceedingly feeble, the effect of the new drug was immediate. Not only was the immediate relief of symptoms more rapid, but the intervals of the attacks were much lengthened; this effect was concurrent with a rapid lowering of arterial tension together with maintenance of this condition for a much longer period than with nitroglycerin. Bradbury asserts that the initial fall depends on the mode of administration: "If the drug is given in spirit and water (one grain in one drachm of alcohol and seven drachms of water) the tension begins to fall in from two to three minutes; if given in a pill and swallowed the time is from twenty to forty minutes; if taken in tablet form and masticated the time lies somewhat between the two. The best form of administration is undoubtedly the tablet form. The alcoholic solution which I originally recommended sometimes irritates the stomach on account of the amount of alcohol it contains, and unless a rapid reaction is required it is better to give the drug in the solid form." Dr. Bradbury claims that the chief usefulness of erythrol tetranitrate lies not in its power of rapidly cutting short an attack, in which it cannot compete with amyl nitrite, but in its affording more prolonged periods of immunity from attacks.

The second volume of Prof. Clifford Allbutt's "System of Medicine by Many Writers" is now issued after a long delay, due to the fact that the article on vaccination could not be written until the publication of the report of the Royal Commission. This volume deals with Infectious Diseases, Intoxications, and Internal Parasites. We are most impressed by the articles of Dr. Sidney Martin on Tuberculosis, of Professor Osler on Malarial Fever, and of Dr. Rolleston on Alcoholism; the former two are specially valuable as records of the individual researches of the authors, while the last is a monument of careful labor in collation. The article by Dr. Dawson Williams on Glandular Fever should also attract general notice, as being the first authoritative account

in English medical literature of a disease that until recently was hardly even recognized. He assigns to it a place in nosology near bubonic plague, to the milder forms of which (pestis minor) it bears some resemblance. He looks to bacteriology to throw some further light on the pathology of the disease. We are also presented with a very substantial article on Vaccinia in Man. Dr. Acland contributes the clinical aspects of the condition, while the pathology is entrusted to Dr. Copeman. Mr. Ernest Hart writes on Vaccination as a Branch of Preventive Medicine; the most useful portion of the article is that on the relations of vaccination and syphilis.

Among other recent books, we gladly welcome two from across the Atlantic, which seem to us likely to find special favor in this country—Holt's "Diseases of Infancy and Childhood" and Hare's "Practical Diagnosis." We have already shown in our acceptance of Professor Osler's "Principles and Practice of Medicine" that we have a hearty welcome in store for the good work of our American brethren.

In a previous letter we drew attention to the appalling amount of venereal disease in the British troops in India, and suggested certain prophylactic measures. We have now the text of the despatch from Lord George Hamilton to the Government of India; it recommends that the rules of the Cantonment Act with regard to cholera, smallpox, diphtheria and typhoid fever should be extended to all venereal diseases. These empower the medical officer of the cantonment hospitals to demand the attendance at the hospital of any suspect, and permit detention for treatment throughout the whole period of communicability. Any disobedience of the suspect to the orders of the medical officer, either in the initial attendance or during the subsequent period of treatment, renders such person liable to expulsion from the cantonment within twenty-four hours; nor is it permissible to return to the cantonment without the written sanction of the medical officer. Thus there is no greater compulsion on women to be examined than applies in the case of other infectious diseases, and any woman objecting to such examination has the alternative course of leaving the cantonment. The Government express themselves as in favor of female medical assistants, under the direction of the medical officer, to examine and treat women. The remaining clauses deal only with restrictions of action, and are obviously thrown in as a sop to fanatics. One clause strikes the

uninitiated lay mind as grotesque to say the least: "Prostitutes must not be allowed to accompany regiments on the march." Has such been the custom in our Indian Army? We were aware that goats, gazelles, and other quadrupeds had functioned as regimental pets, but military lyrics have only told of "The girl I left behind me."

A joint article in *The Lancet* from Drs. Semple and James Taylor deals with an evil to bicyclists which in part has been long familiar to men who ride much and hear much of bicycle lore. This condition consists in a sensation of numbness in the penis and perineum, and in some cases loss of sensation during the passage of urine and feces for some hours after a ride. We have always attributed these effects to direct pressure on the superficial perineal nerves, akin to the bicycle hand, which is sometimes seen in persons who grip their handles too tightly; this affection of the ulnar nerve is analogous to the crutch-palsy of the musculo-spiral nerve. Both the perineal and ulnar affections have been attributed to concussion, but the evidence of this has always appeared to us to be somewhat shadowy. The perineal trouble occurs chiefly in beginners before they have acquired an upright posture in the saddle, and in those who habitually maintain a hunched-up attitude. In many cases immediate relief follows an improvement of posture, but in others it is necessary to have recourse to some form of grooved peak, so as to remove the pressure from the sensitive structures in the mid-line of the perineum; in fact such a peak is desirable in every case, as whatever the posture it is inevitable that as soon as the leg is straightened the greater part of the body-weight should be temporarily thrown on the perineum. The writers of this paper had seen one case of myelitis that had followed on these perineal symptoms, and suggest that the condition was at first one of actual neuritis, which by extension lit up a similar inflammatory condition in the cord. Certainly the march of the symptoms suggests such a sequence, but in the absence of more abundant evidence we suspend judgment.

Professor Charteris vaunts a specific for seasickness; the remedial agent is chlorobrom. From his own considerable personal experience he assures us of its unfailing efficacy to alleviate, and in most cases to cure, *mal de mer*. He suggests the desirability of an initial cholagogue purge followed by the free administration of chlorobrom until relief

is obtained. The drug may be effectively used either as a prophylactic or as a curative agent when seasickness has already set in.

A glance at the report of a committee appointed to inquire into the working of the special hospitals of London is instructive. The report is based on personal inspection of forty-one such institutions, casually selected. The Commissioners report: "That considerable abuse exists among these special hospitals in the following ways: (1) by the treatment either free or for a small sum of patients who could afford to pay a reasonable fee outside; (2) by the admission of patients who do not actually require treatment by a specialist; (3) by the treatment in some instances of more patients in a given time than can be considered either advisable or defensible." On a dispassionate view of these conclusions we cannot realize any very substantial grievance against the special hospitals. One or two subsidiary matters certainly demand immediate redress. Every one will of course be agreed that a hospital for cancer which traffics in cases of abscesses, syphilis, and piles, obtains money from its subscribers under false pretences. It is difficult to imagine any self-respecting body of medical men countenancing such an abuse. Again those patients who can afford a general practitioner's fee and do not require the skill of a specialist should certainly have no claim on a hospital. On the other hand we feel strongly that those cases that require treatment by a specialist, and that cannot afford his private fees, should have as much claim on this special skill as the man in the gutter; and we can conceive no more equitable plan than that which the Commissioners condemn, that they should pay of their means to the institutions from which they seek relief. The real evil seems to us to lie in the excessive number of special hospitals, many of which exist solely for the advancement of interested individuals. The abolition of two-thirds of those now in existence would do much to restore to the teaching schools the valuable clinical material that has gradually been drained away from them, would promote the welfare of the residue of the special hospitals, and sweep away the rank and file of unskilled laborers, who serve merely to bring discredit on the specialty they profess. The general hospitals are themselves chiefly to blame for the multiplicity of these mushroom growths by reason of their slowness to recognize the necessity of specialism, and their failure to adequately equip special departments.

# — THE — Therapeutic Gazette.

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## Original Communications.

### THE LIMITED USEFULNESS OF QUININE AS A REMEDY FOR UTERINE INERTIA.\*

By H. A. HARE, M.D.,

Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia.

The subject with which this article deals was suggested to me to some extent by a conversation had with my friend, Dr. Barton Cooke Hirst, the Professor of Obstetrics in

A paper read before the Obstetrical Society of Philadelphia, April 6, 1897.

the University of Pennsylvania. He stated that in his experience quinine rarely if ever has acted efficiently in cases of uterine inertia; on the contrary it has often produced not only no effect for good but actually imperiled the life of the patient by producing alarming post-partum hemorrhage, or, if this disastrous symptom has not developed, the full dose of quinine usually recommended for this purpose has resulted in all the disagreeable symptoms of fully developed cinchonism.

Our information regarding the influence of quinine upon the uterus or the nervous spinal centers controlling this organ is unfortunately very meager, and even those persons who have ventured to advance an hypothesis as

to its action have not gone further than that the drug by its general tonic effect, which supports the system under a strain in daily life, comes to the aid of the parturient female who, weak at the beginning of her labor or who has developed uterine inertia in its progress, needs something to renew her energies. That quinine is a moderately active supportant to the general system is not to be denied, but that it has any particular selective affinity for the pregnant uterus is not known.

A number of physicians who have given it in large doses to pregnant females suffering from malarial infection have reported abortion as taking place, but it would seem probable that in nearly all these cases the disease was quite as responsible for the effect as the quinine. It is true that Monteverdi has asserted that quinine is capable of inducing abortion, and many others have done likewise; but the great majority of the cases adduced in support of this view do not bear analysis.

Thus we find in the London *Practitioner* (vol. xvii) a statement by Wathen of two cases in which the use of quinine was followed by expulsion of the fetus, but in both of these the patients were ill with epidemic pleuropneumonia and one of the two expelled a tumor of the "shape of a bun" with a fringe to it. The single instances of Roberts (*Practitioner*, vol. xviii) and of Paterson (*Practitioner*, vol. xix) are both useless as indicating that quinine is positively an ecboic, for Paterson's case took ten grains of quinine to combat what she feared was an ague, and Roberts' case was within ten days of labor and had malarial fever.

Other practitioners who have given very large doses of quinine to women in the later stages of pregnancy have been unable to produce the expulsion of the fetus if the mother was not a malarial patient. Thus Chiara of Milan (*L'Union Médicale*, No. 20, 1873) gave thirty grains of quinine a day for two consecutive days to eight pregnant women in the eighth month without any effect on the uterus. In another woman fifteen grains were given daily for a week, and to another for three days, without effect.

A long and exhaustive paper might be written on this subject, but it does not bear directly on the point at issue, since there is a marked difference between the questions as to whether quinine originates uterine contractions or renews or enforces them when once established by Nature.

Without quoting further cases for and

against the view that quinine is capable of inducing labor, I feel justified in stating that the general opinion seems to be that the drug in medicinal doses cannot originate contractions in healthy women.

Turning then to the question as to its power in parturient females, what evidence have we of its power and are there any records indicating that it does harm if not good? An examination of the literature shows that Brunton classes quinine as one of the chief ecboics, and he says "it is said to produce contractions of the gravid uterus and is to be given with care in pregnancy." So, too, we find that H. C. Wood believes quinine to be a useful uterine stimulant in labor, and Lusk's *Obstetrics* quotes Albert H. Smith as saying: "I do not hesitate to give it in every case, because even where there is no decided inertia at the beginning of labor there may be failure of the powers of the mother from early exhaustion and fatigue, and we get the benefit of the quinine in diminishing this tendency and also in promoting the condensation of the uterine fiber after the delivery of the placenta, thus lessening the dangers of post-partum hemorrhage and the annoyances of after-pains so commonly resulting from a slow condensation of the uterine muscle." Smith recommended fifteen-grain doses of the bisulphate of quinine for this purpose. So, too, Winckel quotes Wood and Kleinwächter as recommending quinine in labor for feeble pains in the early stages.

The following statement in part quoted from Albert H. Smith by Playfair is of interest and is the most forcible plea for the use of quinine for its uterine effect that I have found: "The use of quinine as an oxytocic deserves much more attention than it has generally received. I frequently employ it in lingering labor with marked benefit, and it does not seem to have any of the bad effects of ergot. According to the observations of Dr. Albert H. Smith, in forty-two cases of parturition it presented the following peculiar characteristics:

"It has no power in itself to excite uterine contractions, but simply acts as a general stimulant and promoter of vital energy and functional activity. Dr. R. Doyle, of Trinidad, recently writes to point out that quinine given in malarial fever is constantly observed to produce uterine contractions and abortion.

"In normal labor at full term its administration in a dose of fifteen grains is usually followed in as many minutes by a decided increase in the force and frequency of the



uterine contractions, changing in some instances a tedious, exhausting labor into one of rapid energy, advancing to an early completion.

"It promotes the permanent tonic contraction of the uterus after the expulsion of the placenta, women that had flooded in former labors escaping entirely, there not having been an instance of post-partum hemorrhage in the whole forty-two cases.

"It also diminishes the lochial flow where it had been excessive in former labors, the change being remarked upon by the patients, and consequently lessens the severity of the after-pains.

"Cinchonism is very rarely observed as an effect of large doses in parturient women."

This evidence is, however, chiefly the experience of Smith as already quoted (*Transactions of the College of Physicians of Philadelphia*, 1875, p. 183).

Finally we find King (*Manual of Obstetrics*) saying: "Quinine, though not yet generally used in labor cases to reinforce feeble uterine contractions, has been proved of sufficient efficacy in this respect to warrant the hope that it may form a safe substitute for ergot during the first and second stages of labor in the dose of ten to fifteen grains;" and Davis (*Treatise on Obstetrics*, 1896) says: "Quinine has proved a serviceable drug in maintaining the general strength and good uterine contraction."

Davis, however, gives the drug quite differently from all other authors, namely, in two-grain doses every half-hour till twenty grains are taken.

The literature against the use of quinine in uterine inertia is more meager than that for it. It is plain that the teaching of Albert H. Smith tinctures the favorable opinion of those who commend quinine in every authority we have quoted, and the statement of Dorland (*Manual of Obstetrics*, 1896) that "the old method of stimulating the uterus to more forcible contractions by large doses of quinine not only contributes largely to the nausea, and thus increases the discomfort of the woman, but has failed repeatedly in producing the desired effect" finds its origin probably in the teaching of his chief, Dr. Hirst, whom I have already quoted and who I presume is responsible for the following statement in the *American Text-book of Obstetrics* (1895):

"Owing to the recommendations of Albert H. Smith and of Fordyce Barker quinine has had, and still has, a great reputation as a

stimulant to the uterus in labor. The writer's experience with the drug, however, does not permit him to subscribe to a belief in its efficacy as a uterine stimulant in labor. Quinine has the positive disadvantage, moreover, that it will occasionally in certain susceptible individuals produce a violent post-partum hemorrhage."

In order to gain additional information in regard to these disputed facts I sent out a series of questions to the following gentlemen, who have kindly replied as follows:

Dr. Charles Jewett, Professor of Obstetrics in the Long Island College Hospital; Dr. Henry J. Garrigues, Professor of Obstetrics in the New York Post-Graduate School and Hospital; Dr. Edward Reynolds, Instructor in Obstetrics in Harvard University; Dr. E. P. Davis, Clinical Professor of Obstetrics in the Jefferson Medical College; Dr. Richard C. Norris, Physician to the Preston Retreat, Philadelphia; Dr. Chauncey D. Palmer, Professor of Obstetrics in the Medical College of Ohio; Dr. J. Clifton Edgar, Professor of Obstetrics in the Medical Department of the University of the City of New York; and Dr. Edward L. Duer, formerly Professor of Obstetrics in the Philadelphia Polyclinic.

In answer to Question 1—"Has quinine in your hands seemed an efficient remedy for uterine inertia?"—Dr. Jewett replies: "Only partially so. Its influence is never very pronounced and in a considerable proportion of cases is apparently *nil*. I have assumed that its effect is more general than local, rousing the nervous system."

Dr. Garrigues evidently does not employ the drug.

Dr. Reynolds replies: "No effect whatsoever."

Dr. Davis answers: "Quinine in my experience is one of the most efficient stimulants for uterine inertia."

Dr. Norris says: "No, I no longer use it."

Dr. Palmer has little to say for or against its use, as will be evident from the answer to the last question about to be given.

Dr. Edgar answers: "No, it often fails."

Dr. Duer has used quinine as an oxytocic in large doses for many years. In a large percentage of cases it has been seemingly satisfactory, but quite disappointing in many others: "I should be very glad to find a more reliable substitute for this drug to stimulate uterine contraction in labor; at the same time I cannot but believe that quinine is a true oxytocic, and that it can be depended upon to stimulate contractions after the uterus is

once well dilated. It may be said that it only does this after the patient is worn out and requires a strong nerve stimulant; and this may be true, inasmuch as I have observed no direct effect upon the uterus when given at or before the beginning of labor."

In answer to Question 2—"Have you ever seen any untoward effects from its use in labor?"—Dr. Jewett says: "I do not recall an instance, though I have used the drug in a fairly large number of cases. Possibly its usual unpleasant effects are overshadowed by the pains of labor and are not observed."

Dr. Garrigues does not reply, as he evidently does not use quinine.

Dr. Reynolds says: "None, except discomfort from tinnitus."

Dr. Davis replies: "I have never seen untoward effects from its use."

Dr. Norris replies temporary deafness in two cases.

Dr. Edgar answers "No."

Dr. Duer has never had any ill effects, other than the usual ringing in the ears.

In reply to Question 3—"What dose do you consider the proper one if it is employed?"—Dr. Jewett says: "My dose has been ten grains."

Dr. Reynolds replies: "Have given ten grains in a single dose not repeated, and have not used the drug in labor for ten years."

Dr. Davis: "I give two grains of quinine and one grain of scale pepsin in capsule every hour, or two capsules every two hours, until from ten to twelve grains have been taken. It is best administered with milk, broth, or with milk-punch or egg-nog."

Dr. Norris answers ten or fifteen grains repeated in two hours.

Dr. Edgar answers ten grains in one dose or two grains every half-hour till ten are taken.

Dr. Duer: "I usually give thirty grains in two doses, one hour apart, and have never seen any good effects until after the second dose has had time to be absorbed."

In answer to Question 4—"If you have not employed quinine for uterine inertia in the early stages of labor, what have you used for this purpose?"—Dr. Jewett says: "Keeping bladder and rectum empty; patient on her feet or sitting; rectal injection of glycerin; alternate use of hot and cold compresses over abdomen; faradic current through uterus from side to side, or from upper sacral region to posterior vaginal fornix, avoiding child's head; peeling up membranes from lower uter-

ine segment; passage of bougie between membranes and uterine wall; formerly glycerin injections between uterus and membranes, now abandoned; dilatation by hand or by water-bags. Internal interference, however, it is desirable to avoid if possible, owing to increased risk of infection. In the second stage I have used to some extent the fluid extract of ergot in ten-minim doses. It acts to increase the force and frequency of the pains. The effect lasts for an hour when the dose is repeated. I have observed no bad effects on mother or child when the drug has been given in this manner."

Dr. Garrigues replies: "Antipyrin ten grains every hour; chloral hydrate, fifteen grains every half-hour; hot vaginal douche; let the patient get up and walk about. Intra-uterine bougie (English male urethral bougie) best of all."

Dr. Reynolds: "Patience; in two or three cases of simple inertia ten drops of fluid extract of ergot, repeated five or six times and guarded by a constant watch of the fetal heart and every preparation for immediate forceps. In apparent inertia due to tonic constrictions, chloral or ether; in some cases a manual dilatation of the os."

Dr. Davis says: "Drugs are not indicated for uterine inertia in the first stage of labor. Neither quinine nor any other drug has practical value at this time. In general quinine will not excite labor pains, but after the rupture of the membranes quinine is a most efficient general tonic, increasing the efficiency of the nervous system and thereby furthering labor. In the early stages of labor, if a stimulus to uterine contractions is necessary, artificial dilatation of the neck of the uterus should be employed."

Dr. Norris replies: "When prolonged and nagging pain has exhausted the patient a dose of chloral (ten to fifteen grains) has produced rest, quiet, and sometimes sleep; and in consequence I have seen the pains start afresh and with energy. I have observed good effects from a moderate amount of alcohol (whiskey or sherry) in *private* patients, when exhausted. In many multiparæ a prolonged and tiresome first stage is abruptly terminated and vigorous pains appear when the membranes are ruptured. This, of course, should only be resorted to after the os is well dilated."

Dr. Palmer writes: "I have used quinine very little for uterine inertia. Good results have been reported. I do not think a dose of 10-15 grains would do any special harm.

But I do often make use of it as a uterine tonic, in conjunction with ergotin and strychnine, after labor at term or after abortion, as a prophylactic for the purpose of preventing subinvolution of uterus, as:

℞ Quinine sulphate, 2 scruples;  
Ergotin, 1 scruple;  
Strychnine sulphate, ¼ grain.

M. ft. in pil. xx. S.: One ter die."

Dr. Edgar writes: "In addition to quinine, strychnine (hypodermically), Barnes' hydrostatic bags, digital separation of membranes at internal os, and if necessary *partial* manual dilatation of os. Also hot (110° F.) vaginal douches; stimulating enemata (glycerin and turpentine)."

We find therefore that the general tenor of these replies does not express unbounded faith in the value of quinine as an oxytocic, and it evidently only acts as a stimulant to the general system, as would alcohol or other drug of similar stimulant power.

The next important question to be decided is as to whether quinine does tend in some cases to predispose to post-partum hemorrhage.

There is undeniable evidence that quinine does produce a hemorrhagic effect in some persons, and the records of therapeutics are by no means free from reported cases. The large dose of twenty grains in a strong solution may by nauseating the patient cause muscular relaxation and so produce hemorrhage. The following observations are also useful and interesting. Thus Cachere reports (*New Orleans Journal of Medicine*, October, 1869) the case of a boy of, thirteen years who suffered from hematuria after three ten-grain doses, and in a girl of seven years quinine invariably produced the same result. Ducrot (*Bulletin de Thérapeutique*, xv, 248) has also reported similar effects, and I have called attention to the fact recorded by Karamitsas (*Bulletin Général de Thérapeutique*), Pampouksis and Chomatianos that quinine often produces hematuria in persons with an idiosyncrasy. There seems to be a general consensus of opinion that quinine exercises an irritating influence on the genito-urinary tract, for in support of the views just stated we find that Guyochin (*Action Physiol. et Thérapeutique de la Quinine*, Paris, 1872) reports such cases, and Fagioti does likewise. Monneret and Rivet (*L'Union Médicale*, November 1, 1884), Dasset (*Bulletin de Thérapeutique*, xv, p. 248), reports hematuria with urinary retention. Nor does the evidence as to the hemorrhagic influence of quinine cease at this

point. Gauchet reports hemoptysis, and Simon de Ronchard (*Thérap. de la Quinine*, Paris, 1872) saw several such cases after the use of eight grains a day, the lungs and heart being healthy. A stoppage of the quinine resulted in an arrest of the hemorrhage.

Finally we find the following interesting case reported by Gelineau and quoted by Stillé: A woman in delicate health took ten grains of quinine on an empty stomach and was attacked in about two hours with rigors and cold sweats. The face was pale, the eyes sunken, the pupils dilated, the teeth clenched and the limbs stiff, and a bloody discharge from the vagina came on although menstruation was not at hand.

So far as evidence is concerned pointing to post-partum hemorrhage being produced by quinine, I am unable to adduce any other than that already quoted from Hirst.

It seems evident, however, that quinine is not a first rate uterine stimulant, and that for this reason its ordinary contraindications are so great as to limit its oxytocic usefulness. As pointed out in my "*Text-book of Practical Therapeutics*" these contraindications are as follows: gastritis, cystitis, meningitis, epilepsy, cerebritis, middle-ear disease, and in those cases which have an idiosyncrasy to its action.

#### TURPENTINE AS A REMEDIAL AGENT.\*

BY JAMES B. WALKER, M.D., Ph.D.

Channels of ingestion, digestion, secretion and ejection being possessed of mucous linings, and these, whether for air, food, secretions, or excretions, being so extensively distributed through the body and all communicating directly or indirectly with that disease-laden environment, the external air, it is but little wonder that catarrhal diseases constitute so large a portion of human ailments. While most of these catarrhs disappear entirely soon after the acute symptoms subside under the healing influence of the *vis medicatrix naturæ*, still many remain to harass the patient for an indefinite period as subacute or chronic catarrhs.

The experience of the medical profession with this class of diseases has been very extensive during the past few years, since influenza has become endemic. Methods of treatment of these catarrhs must therefore be of interest to us; and from an extensive

\* Read before the American Climatological Association, Washington, May 6, 1897.

use of turpentine in these conditions I feel justified in presenting for your consideration some of its virtues. I wish, however, at the outset to disavow any inclination to pronounce it either a cure-all or of universal application; or that other agents in other hands may not be as efficient. Its action in subacute and chronic catarrhs seems to be that of a *stimulant alterative*; and as when given by the mouth it reaches, before elimination from the body, every mucous surface in a less or greater degree, its service is not a matter for much surprise.

There is no doubt it is also decidedly anti-septic, but its value in this respect has not been agreed upon by the bacteriologists. The knowledge of the value of turpentine has been so long a part of medical lore, so much has been written by our fathers concerning clinical experience with it, that it would seem an unnecessary task to reiterate the facts concerning it. But truths are established and forgotten in medicine as elsewhere, and most of the written advocacy of this agent is buried in the pile of forgotten, and much of it well forgotten, lore.

The unceasing procession of new remedies, many of which are of great value and most of which claim at least passing attention if not deeper study, crowds from view and from mind those of older fashion and use and relegates them to a limited occupancy in our armamentarium.

On these accounts it is that I have chosen to claim a portion of your valuable time, that I may present some facts, as I believe them to be, no one of which is altogether new and most of which may be familiar to every one present.

The virtues of turpentine to which I desire to call especial attention are those concerning its usefulness in *subacute and chronic catarrhs* and as a *hemostatic*.

Geo. B. Wood established it upon a secure basis in the relief of typhoid ulceration, proving conclusively by its influence on the tongue and the "typhoid condition" generally, the great value of the drug; as well as establishing it as a hemostatic in this class of cases. To use his own expression, "it is one of our best hemostatics." J. Smith of London, in a monograph on Turpentine published in 1856, speaks of it in the same words. Hunter recommended it in hematemesis, and Graves and Seymour confirm its utility in similar cases. Aitken speaks of it as highly recommended by Budd; a Watson Edition, 1872, says "it is recommended as a *specific* in hema-

temesis." Fagge says "some writers have spoken of it very highly." Horatio C. Wood gives it more generous recognition in his *Materia Medica* than most later authors. In speaking of its use in ulceration of the bowel he says "in old gastric ulcer good results are sometimes derived from its use." In the *Practice of Medicine* by Wood and Fitz he says, however, that in acute cases of hematemesis it may not only not do good but may prove absolutely harmful; though not suggesting how this harm is to be brought about. Other modern authors, so far as I have been able to consult them, whether in the elaborate systems of medicine or the less pretentious text-books, are absolutely silent on the virtues of this hemostatic in gastric ulcer, though generous in supporting bismuth, silver, lead, iron, tannic acid and other vaunted hemostatics, no one of which is retainable by an excessively irritable case and any one of which by increase of emesis tends directly to increase the hemorrhage. Referring to these authorities as to the treatment of catarrhal conditions or of hemorrhage from mucous surfaces, the great value of turpentine is almost invariably recognized as to the condition in typhoid fever, whether the object is to allay irritative diarrhea, lessen tenesmus, modify the ulcerative process, or arrest hemorrhage; but in like conditions arising from other causes or in other diseases the potentiality of the drug is forgotten.

One cause, I am sure, of the neglect of so potent a remedy has been the large doses (half-ounce) in which it was formerly given and the distasteful emulsion which some would-be pharmacist foisted upon a gullible profession.

My first acquaintance with turpentine, barring some very juvenile personal experience with its administration on a teaspoonful of sugar for vermifugal purposes, was while a student of medicine. The case was one of ulcer of the stomach, occurring in a previously healthy young lady, who was rapidly rendered almost exsanguine by the most excessive hemorrhages I have ever known. The ordinary remedies had not only failed to relieve, but each in its turn seemed only to aggravate the hematemesis, until the case seemed absolutely hopeless. At the suggestion of a lay woman who had known of a severe case of vomiting of blood which was arrested by turpentine, it was resorted to by Dr. Pawling of Montgomery county, Pa., who had charge of the case. The first dose was the first thing retained for days, and there-

after cure was rapidly effected, without resort to other aid save the ice-bag, which had been in use from the first. Watching this case throughout and noting the almost marvelous action of this remedy after other so-called hemostatics had each but aggravated the hemorrhage, until we feared to use any internal agent lest fatal hemorrhage might occur, established to my satisfaction at least the value of turpentine as a hemostatic; and I have since used it in a number of cases of gastric ulcer in hospital and private practise and have had my first impressions firmly established.

Its benign influence in irritable cases is inconceivable without personal experience, though I am satisfied a great deal depends on the method of administration. The best method in gastric cases with decided irritability is in suspension. The globule or capsule forming a palpable mass will often be rapidly ejected, whereas the diffusing vapors from the solution rapidly dispersing through the viscus may be retained. The best solution is, not the gummy emulsion, unpalatable and nauseous to most and which I think is to be named only to be condemned, but the solution made at the bedside, dose by dose, by stirring two to ten drops of oil of turpentine in an ounce or two of water well sweetened with the *Saccharum Anisi* of the German Pharmacopœia. The acrimony of the turpentine is by this means entirely corrected, if the proper amount of the medicated sugar is used; and both palate and stomach accept it readily if not eagerly. This is the preferable method in administering it to young children, for whatever purpose it is given, and for all cases at whatever period of life if an irritable stomach is to receive it.

Where an angry viscus or the age of the patient is not a consideration the sealed capsule, soft or hard, is to be preferred. It might be added that this or any other volatile agent should never be administered in the bivalve capsule, so convenient for non-volatile substances.

In hematemesis from other causes than ulceration it may serve as a valuable hemostatic. In that arising from chronic alcoholism or in chronic venous engorgement from other causes it is more efficient than the astringents, and combined with hygienic necessities will often prove efficacious. If hepatic obstruction exists it of course can only effect its hemostatic purpose.

As an illustration of its gentle efficiency I will recite a case of its use in an infant. In

August, 1896, Elizabeth F., aged three days, was noticed to be extremely pale, and on inquiry I learned she had been vomiting blood at intervals for two days, and her stools were tarry. Finding no cardiac cause for the same, I gave oil of turpentine as a hemostatic and there was no further hemorrhage and the child thrived uninterruptedly until it was four months old, when the hemorrhage was repeated and with equally effective use of the turpentine. I am sorry to admit that in neither case was I able to find the cause of the hemorrhage.

But it is not alone in ulceration with or without hemorrhage that turpentine proves itself a boon in gastro-intestinal troubles. In subacute and chronic catarrhal conditions it is of equal value. Its property of rapid diffusion distributes it throughout more or less of the entire intestinal tract, and brings it into intimate contact with the catarrhal area more rapidly and more certainly than any non-volatile remedy, and applies whatever healing virtue it may possess more surely wherever it is required. In the past six years the proportion of catarrhal diseases has greatly increased, and in many cases the gastro-intestinal tract especially suffers. Whether these cases are really cases of la grippe or merely seasonal or climatic catarrhal troubles I leave to others to discuss; but we must all admit, especially those living along the Atlantic seaboard, that these catarrhs accompany other manifestations of la grippe, both as to time and place, and the terms la grippe of stomach or bowels may not be so markedly inaccurate as some claim. Even appendicitis, no longer attributed to wandering fruit seeds, but recognized as often at least of catarrhal origin, has by its great multiplication in the same grippe period emboldened me to believe that it *owes its origin in the great majority of cases to the same catarrhal cause.*

In these catarrhs of the stomach and intestines, after the acute symptoms subside, there is often left an irritability which lingers to annoy, and when in the stomach to even threaten life. The tongue in many of these cases has not the usual appearances suggesting turpentine, which have become classical. Often it is pale and but slightly furred, with a whitish or yellowish white coat. And yet the stomach may reject all ingesta, even water; or it may be less irritable, with dyspeptic symptoms, and annoying chiefly because so persistent. In the bowels the pain is usually referred to the suprapubic and in-

guinal regions, accompanied by a sense of heaviness and a general feeling of languor and depression. For these conditions no remedy has served me so friendly a turn as the oil of turpentine. Of course the hygienic indications have been followed also, and I would not have it understood for a moment that I advocate this or any other remedy to the avoidance or neglect of dietetic and other hygienic attentions. But of the remedies for such a condition turpentine outranks them all. Here it must be administered as before suggested, and where the stomach is non-retentive the solution in anise sugar water, small doses every two hours, is to be resorted to. In the other cases the five-minim capsule should be given an hour after meals, when it will be least likely to be regurgitated; an extra capsule may be given at bedtime if there is much tympany or irritation.

I could give numbers of illustrative cases to support what I have asserted, but perhaps all are as familiar with this use of the drug as I am myself. The look of surprise on more than one physician's face when I have suggested this remedy for such a condition, however, causes me to believe that its value in such cases is not universally appreciated. And I may add that the enthusiasm with which these same physicians after using it speak of it establishes me the more firmly in my estimation of its value.

In catarrhs of the respiratory system after the acute symptoms have subsided, where a free secretion is present or where the catarrh persists, with or without localized subcrepitant râles, so frequent in lingering attacks of influenza, its value is exceptional. Being excreted in part by the pulmonary mucous membrane it reaches directly from within the surfaces and even the cells of the tissues involved. It is greatly preferable to the ammonia salts, because more efficient and more acceptable to palate and stomach. In the more chronic cases, where creosote and guaiacol are recommended, it has been in my hands equally efficacious and often less objectionable.

In the bronchial catarrhs of the aged and the infirm of any age its stimulating qualities as well as its local alterative effect make it invaluable.

In the catarrhal conditions of phthisis, especially when bronchorrhea is present and even where the secretion is only fairly free, its remedial effects are easily appreciated; and here again, whether cavities are present or not it should rank equal if not superior to

creosote and guaiacol. In the hemorrhages of phthisis, as I have already stated before this Association, it should hold first rank among drugs. Here as in intestinal catarrhs and hemorrhages its internal administration may be supplemented by its external use in form of a stupe, although in some, perhaps most, instances the ice-bag is preferable for external application.

Inasmuch as the renal shares with the pulmonary mucosa in its elimination, it finds opportunity for service in chronic catarrhs of the urinary tract. I have not used it in chronic catarrhal nephritis, but believe that cautiously used in small doses in cases under close and frequent observation it will often serve us a good turn, in the almost hopeless maiming to which the renal mucosa is subjected in this form of Bright's disease. Certainly in chronic vesical catarrh, with or without enlarged prostate, it has proven of much value in a few cases where it has been given. In chronic cystitis and urethritis of gonorrheal origin it is of extensive usefulness, its action being similar to, though I believe more certain than, the oil of sandalwood so generally employed.

In hematuria it has the same virtue as a hemostatic as in other mucous hemorrhages.

I could recite a number of instances where in metrorrhagia without tumor or other palpable cause turpentine has served me a good turn.

Of its action as a diffusible stimulant affecting the system generally and especially the heart, and through the improved circulation the entire economy, I will not dwell at this time.

1617 GREEN ST., PHILADELPHIA.

#### THE TREATMENT OF COMPLICATED ULCERS OF THE CORNEA.\*

BY CLARENCE A. VEASEY, A.M., M.D.,

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In a former paper† it was suggested that for all practical purposes corneal ulcers be divided into two great classes, the simple

\* Read before the forty-seventh annual meeting of the Medical Society of the State of Pennsylvania.

† The Treatment of Simple Ulcers of the Cornea. The Philadelphia Polyclinic, June 22, 1895.

and the complicated. By a simple ulcer is meant one that makes its appearance as a small, superficial, grayish lesion of the cornea, with no marked tendency to spread and with slight inflammatory symptoms such as injection of the conjunctiva, moderate lachrymation, and perhaps more or less intolerance of light. By a complicated ulcer is meant one that is more or less extensive, that shows a disposition to spread rapidly and involve other portions of the cornea than that first affected, and which produces all of the symptoms found in connection with a simple ulcer in a markedly exaggerated form. In the paper above referred to the author discussed the treatment of the first class, or simple corneal ulcers. In the short time at his disposal to-day he will endeavor to discuss briefly those methods of treatment of the second class, or complicated corneal ulcers, that have proved to be the most satisfactory in his own work.

A corneal ulcer ordinarily presents itself as a small grayish spot, the surrounding portion of the cornea being more or less hazy. This haziness may be a solid infiltration in all directions around the ulcer, or the latter may be a central point from which numerous striæ pass in various directions. The eyeball is more or less injected, there is excessive lachrymation, intolerance of light, and pain, the latter sometimes being out of proportion to the severity of the lesion owing to the distribution of nerves in the anterior layers of the cornea.

In the treatment of complicated corneal ulcers we begin as in the simple cases, by searching for the cause and removing it if possible. We look for foreign bodies either in the ulcer itself or upon the under surface of the lids where they may have lodged, and by constant scraping of the cornea as the lids were opened and closed have caused a denudation of the corneal epithelium, resulting in ulceration. In the same way misplaced cilia and small growths frequently cause corneal ulceration. But by far the most frequent cause, especially in children, is intranasal disease extending upward through the lacrimal ducts into the conjunctiva and thence to the cornea; and in all cases in which this condition is found the treatment must be directed towards it as well as towards the ulcer itself.

In the local treatment it is better to begin with the employment of those remedies found to be of the greatest service in the treatment of simple corneal ulcers, as many of the more

complicated cases yield to these alone. They are as follows:

1. *Moist Heat*.—In applying moist heat to the eye the object is to keep up a continuous uniform high temperature for some time at regular intervals, and this is done in the following manner: Several small pieces of lint or flannel about three inches in diameter are dipped into water as hot as the hand can be held in for an instant, or at the temperature of 120° F., and laid on the closed eyelids, three or four thicknesses being employed, as the heat is better retained in this way. In from one to one and one-half minutes these are replaced by others, more hot water being repeatedly added to keep up the temperature. Heat applied in this manner should be employed for fifteen to thirty, or even sixty, minutes at a time, and should be used from three to eight times a day according to the virulence of the ulcer.

2. *Cleansing Solutions*.—Immediately after using the moist heat, and between the applications if there be much discharge, the conjunctival cul-de-sac and the cornea should be thoroughly cleansed by means of some soothing lotion. For this purpose a saturated solution of boracic acid, or a solution of mercuric chloride (1:6000), answers the purpose very well, though solutions of other remedies may be preferred by others, as chlorine water, cyanuret of mercury, permanganate of potash, or formaldehyde. The latter drug in the strength of 1 part to 4000 has proved of the greatest service in those varieties of corneal ulcers having a tendency to spread with unusual rapidity and complicated with hypopyon, but must be employed at frequent intervals, namely, every hour or two. Whatever solution is employed should be warm, and this temperature is readily secured by standing the bottle containing the solution in a basin of hot water for a few moments before using, care being taken to test the solution on the back of the hand before placing in contact with the eye.

3. *Instillation of Atropine or Eserin*.—A drop of a solution of the sulphate of atropine (four grains to the fluidounce) is dropped on the cornea two or three times a day, provided the ulcer be situated near its center. This combats any impending inflammation of the iris and reduces the general irritation of the eye, in this manner acting favorably upon the ulcer itself. But should the ulcer be situated near the margin of the cornea a drop of a solution of the sulphate of eserine

(one-sixth or one-fourth of a grain to the fluidounce) may be employed instead. The latter promotes healing by stopping the migration of the white blood-corpuscles, by promoting absorption through dilatation of the ciliary vessels, and by reducing intra-ocular tension if this be elevated. It should be employed from three to six times a day, and as it possesses a tendency to cause congestion of the iris and ciliary body it is better during the time of its employment to counteract this tendency by instilling at night a drop of the solution of atropine. Should there be at any time any complication involving the iris or ciliary body the eserine must be discontinued and the atropine employed in its place.

4. *Protection*.—The eye should be protected by dark glasses or a bandage. If much discharge is present it is evidently improper to dam it up in an already inflamed eye; in such a case dark glasses being preferable. If the amount of the discharge be small a well-applied bandage will materially assist in the reparative process, it being left off long enough for the application of the other remedies. It should be applied lightly but firmly, and should keep the lids closed and at rest without making any pressure on the eyeball, unless this should be required. It also keeps out such extraneous matter as dust, and should be worn until the floor of the ulcer is covered with epithelium, which protects it from external irritation.

Should the ulcer seem disposed to spread rapidly, to become more virulent in action, and to involve greater destruction of the corneal tissue in spite of the faithful employment of the above-mentioned remedies, our measures for checking its progress and producing resolution must necessarily be somewhat more severe. In the order in which they are employed they are as follows:

5. *Curettement*.—The ulcer may be curetted by an instrument specially devised for this purpose, or if this is not at hand it may be done more or less perfectly with a sterilized probe on the end of which has been wrapped a wisp of aseptic absorbent cotton. The cornea is first anesthetized with a solution of cocaine, or eucaine, after which a drop of a two-per-cent. solution of fluorescein is instilled and the excess washed off, this substance having the power of coloring the ulcerated portion light green, while the remaining portion of the cornea having its epithelium intact remains unchanged. The use of this preparation,

therefore, is of decided advantage, as it maps out for the operator the exact portion to be curetted and enables him to avoid injuring the healthy parts of the cornea. The sides and back of the ulcer are relieved of the slough as far as possible, and after a drop of the atropine solution is instilled some finely powdered sterilized iodoform is dusted upon the cornea, and a light pressure bandage applied. This is repeated if necessary on the succeeding day. Recently the author has also obtained some excellent results from the use of finely powdered acetanilid employed in place of the iodoform.

Hydraulic curetting as a method of treatment has recently been suggested, and it is carried out by having a receptacle containing the antiseptic solution to be employed held on a higher level than the eyes, while a nozzle with a fine point, connected with the former by means of a rubber tube, directs the stream for some minutes against the ulcer.

6. *Topical Application of Chemicals*.—If after a fair trial of the curette, the iodoform and the bandage, together with the use of moist heat, atropine, or eserine, according to the indications already stated, the ulcer should continue to grow worse, it is best to attempt to bring about a healthy condition by the application of some one of the chemical agents used for this purpose. The ulcer is first curetted in the manner described and the chemical agent is brought in contact with every portion of it by means of a wisp of cotton wrapped on a pointed probe, or stick, previously sterilized. For this purpose one of the simplest as well as one of the best stimulants is the tincture of iodine. Stronger agents, actually cauterizing the parts, are solutions of silver nitrate (ten to thirty grains to the fluidounce), liquid carbolic acid, and strong solutions of bichloride of mercury (1:500). In applying these care must be taken to touch only the affected parts, as an application to the healthy cornea would result in an opacity of greater or lesser density; and as an opacity always results from corneal ulceration, except the most superficial, it must be our object to keep it as small as possible. After the application of the chemical agent the eye is treated as after curettement.

7. *The Actual Cautery*.—Among the more severe remedies at our disposal, when those previously referred to fail to check the progress of the ulcer, is the actual cautery, and in very few cases does the proper use of it fail to prevent the further extension of the disease. In the execution of this method of



treatment we may employ the elaborate cautery outfits of the shops, if they are at hand, but a simple as well as most effective cautery probe can be had by inserting a piece of medium-sized platinum wire into the so-called "universal" laryngoscope handle. An assistant holding an alcohol lamp near the head, all draughts being avoided so that the flame will be steady, the end of the probe is brought to a white heat and quickly transferred to the ulcerated portion of the cornea, this having been mapped out by the use of fluorescein after the cocaineization of the eye and the eyeball being firmly held with the fixation forceps. As before stated the sides and base of the ulcer must be thoroughly cauterized, but care must be taken to avoid injury to the healthy tissue. Properly applied the actual cautery leaves a scar no larger than, if as large as, would have been the case if it had not been used; but improperly applied it increases the size of the corneal scar and therefore decreases in proportion the visual acuity. The eye is dressed as after the application of the chemical agents.

If at any time during the treatment of the disease the cornea threatens to perforate, as indicated by a slight bulging of the base of the ulcer, a bandage is evenly applied, making gentle but firm pressure; and if in spite of this the bulging continues to increase it is better to anticipate perforation by performing paracentesis of the anterior chamber through the floor of the ulcer itself if the conditions are favorable.

8. *Intranasal Treatment.*—In those cases having considerable discharge of mucus or muco-pus from the nares it is well to cleanse the parts several times a day with a mildly alkaline solution, such as Dobell's, one-fourth strength, and to follow with the insufflation of some of the following powder:

- ℞ Pulverized camphor, 30 grains;
- Pulverized aristol, 10 grains;
- Pulverized menthol, 20 grains;
- Bismuth subcarbonate, 2 drachms.

Mix.

If the mucous membrane on the turbinated bones be much swollen it may be sprayed with a solution of antipyrin (ten to thirty grains to the fluidounce), the parts then cleansed with the alkaline solution, and this followed by the spray of an oily preparation:

- ℞ Pulverized camphor, 30 grains;
- Pulverized menthol, 30 grains;
- Liquid petrolatum, 1 fluidounce.

Mix.

The topical application of the compound

tincture of benzoin has also been found of much benefit in these cases.

If there is any gross lesion such as a polyp, a spur, or septal deviation, it must be attended to as early as possible, and this also applies to any disease of the lacrimal duct.

9. *Constitutional Treatment.*—As with disease manifesting itself in any other part of the body the constitution must be put in the best possible condition. Instead of confining patients to a darkened room, as a rule it will be better to allow them to pass several hours a day in the open air, the eyes being properly protected. Any particular diathesis that is present must be especially attended to, and in large, progressive ulcers the system must be supported by stimulants, and quinine administered. In the beginning it is advisable to give a brisk purgative followed by a saline draught. The diet must be digestible and nourishing, all sweets being interdicted. If pain is severe and continuous and not relieved by the means suggested above, the antineuralgics or even opiates are indicated.

In the preceding remarks those methods of treatment that have been of the greatest use to the author in the management of such cases are given in the order in which they are usually employed. It is impossible in the brief time allotted to this paper to discuss the many complications that may arise during the treatment of a given case. No fixed rules can be made, but a general plan has been outlined, to be modified as emergencies demand.

Many other methods of treatment have been advocated by various surgeons, but brief mention will be made of only one, viz., the subconjunctival injections of solutions of mercuric chloride. As stated elsewhere, personal experience in the employment of these injections for the treatment of ulcerative disease of the cornea has not given to them the position of value to which they have been assigned by many ophthalmic surgeons. Experience in the treatment of a large number of cases during the past three years has shown that injections of a solution of sodium chloride beneath the conjunctiva prove equally as beneficial as injections of a solution of mercuric chloride, and that neither of them is of much value in the treatment of this class of cases.

To recapitulate, the treatment of complicated ulcers of the cornea should be carried out in the following order:

1. Examine thoroughly the conjunctiva, the lacrimal ducts, the nares and naso-pharynx, as well as the cornea itself, and if any

abnormal condition be found that is either the primary cause of the ulcer or that is keeping up the condition, direct the treatment against it as well as against the ulcer itself.

2. Employ moist heat by means of the local application of pieces of lint or flannel wrung out in hot water at a temperature of 120° F. from fifteen to sixty minutes at a time, repeating at intervals varying from two to four hours, according to the virulence of the disease.

3. Cleanse the ulcer and the conjunctival cul-de-sac with some warm antiseptic solution immediately after the employment of the moist heat, and between the times of its employment if there be much discharge. For this purpose may be used a saturated solution of boracic acid, a solution of bichloride of mercury (1:6000), or a solution of formaldehyde (1:4000).

4. Instil a drop or two of a solution of atropine (four grains to the fluidounce) once or twice daily if the ulcer be central; but if it be peripheral, a solution of eserine (one-sixth of a grain to the fluidounce) may be employed from three to six times during the day, and the atropine solution instilled once at night.

5. The eye must be protected by dark glasses or an evenly and lightly applied bandage. As a rule the former should be used in those cases in which there is considerable discharge, the latter in the cases in which very little discharge is present.

6. Should the above means fail to check the progress of the ulcer it should be curetted, and after dusting on its surface some iodoform, previously pulverized and sterilized, a bandage should be applied.

7. Should the ulcer continue to spread, after being curetted it should be touched with some one of the chemical agents employed for the purpose. Of these the tincture of iodine, liquid carbolic acid, and silver nitrate (the latter in the strength of ten to twenty grains to the fluidounce) seem to be the best.

8. The actual cautery should be applied after the previously described remedies have been employed without beneficial result, or even before these have been used if it be seen that the ulcer has assumed a malignant type—that is, if the cornea is becoming so rapidly involved that the destruction of all, or a large portion, of its tissue is threatened.

9. Any unhygienic condition, dietetic error, or constitutional diathesis should be corrected.

## TREATMENT OF ACUTE ANTERIOR URETHRITIS IN THE MALE.\*

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The treatment of gonorrhea, or clap as it is somewhat affectionately called by the laity, interests every practitioner of medicine for several reasons: first, it is the most common of the three great groups of venereal diseases and is always present in the community; second, it is no respecter of persons, since the man of leisure and the artisan here meet on a common if not sacred ground; and lastly, the views held by the profession, as also unfortunately by the public, are so different and numerous that one is often puzzled to know exactly what are the guiding principles that should govern the treatment of urethritis.

Before considering the question of treatment it is necessary to take into account, briefly, the nature and functions of the urethra. The teacher of anatomy describes the urethra as being divisible into three portions—a prostatic, membranous, and spongy—and no better subdivision is to be desired for descriptive purposes; but the division of the genito-urinary surgeon is different, depending upon the part played by the compressor urethræ or cut-off muscle, and consequently he only speaks of an anterior and a posterior urethra, his anterior including everything in front of the anterior layer of the triangular ligament, the posterior embracing what is left. This division of the urethra gives to the clinician an exact and useful nomenclature, since he can and does speak of anterior urethritis, or urethritis, and posterior urethritis, the latter being viewed by many as a complication, equally with epididymitis, prostatitis, or cystitis, that is placed precisely in the same category as other parts in direct anatomical relation by continuity of structure with the anterior urethra. Though usually represented in diagrams as a hollow cylinder, let the urethra be viewed as a collapsed tubular valve between the bladder and the outer world, about seven to eight inches long, having a double purpose: first, as a root for the escape of urine; second, as a spermatic conduit, thus making the urethra necessarily as long as the penis. Now, this urethral gain in length is the penalty paid by the male for his

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sex, as Sir Henry Thompson has so aptly and instructively observed. When it is seen that the urethra is composed of a mucous membrane, perhaps the most sensitive mucous surface in the body, a submucous connective tissue layer, and a muscular coat, that it is surrounded by erectile tissue, particularly the penile urethra, that its caliber is a varying one, that its mucous membrane has many follicular depressions or glands, and that by continuity of structure its anatomical relations extend as far as the kidney, and finally when it is acknowledged that "the temper of the urethra varies as much as the temper of the mind," it causes the realization that even anterior urethritis is a disease of importance and should be treated with a reasonable amount of thoroughness and care.

Having considered the site awaiting the disease gonorrhea, it is desirable and necessary that a cause be assigned, if possible, in order that our line of treatment may be a rational and consequently hopeful one. I believe the majority of cases the practitioner has to meet depend for their development upon the presence of the gonococcus of Neisser, discovered in 1879, and those cases in which the above germ cannot be found are to be attributed to some other pus-producing micro-organism—in other words, I am a supporter of the view that the origin of gonorrhea is a microbic one. This explanation of the etiology of urethritis is of great practical value in formulating a plan of treatment.

Anterior urethritis presents, clinically, three stages, viz: a first or increasing stage, lasting about one week, with ardor urinæ and purulent discharge as constant symptoms, and usually, though not always, chordee and frequent urination; a second or stationary, lasting about two weeks, with continuance of the above symptoms; and a third or subsiding, in which all symptoms in uncomplicated cases tend to disappear, the duration of this stage being in favorable cases from three to four weeks, and sometimes even longer. This affection being a local disease and not constitutional (a fact that should invariably be impressed upon patients, so that in future there may be no confusion, when it may become necessary for them to give their venereal history to some medical man), and occurring as a rule in men when the sexual wave is at its height, between the years of twenty and thirty-five—that is, when they enjoy a good measure of health—our treatment can usually be directed to the cure of the

gonorrhea *per se*, and the patient apart from his disease discounted therapeutically. Believing in the microbic origin of urethritis—in a typical case—any treatment instituted, to be in line with modern progress, should and must be an antiseptic one. This may be applied to the urethra either directly, by injection, irrigation, instillations, etc., or indirectly, through such drugs as are eliminated in the urine, and are therefore brought into contact with the diseased mucous membrane during each act of urination. In the beginning the surgeon meets with a difficulty, and that is he cannot apply or follow out an antiseptic line of treatment of sufficient thoroughness to disinfect the infected urethra, such as could and would be employed in other regions of the body, this difficulty being due to the excessively acute degree of sensibility of the urethral mucous membrane.

I shall only allude to the abortive treatment, and say that so far as I am aware it is not looked upon with the same enthusiasm as formerly. It would be a very pleasing thing to the professional man to be able to abort an attack of clap, knowing as he does how dangerous and troublesome any attack may become; but so little success has attended the efforts of even the most experienced men in this direction, and since the treatment adopted very often renders the case one of high inflammatory grade, the practitioner may usually avoid the procedures advised in making the attempt to annihilate the malady in its birth. The only methods I shall speak of are injections of strong nitrate of silver solutions, as detailed in all text-books, and Dr. J. Chalmers DaCosta's novel and brilliant plan, where he employs hydrogen peroxide, oil of cinnamon, and benzoinol, the details of which can be found in his paper in the *Medical News*, October 21, 1893. But as few men consult their medical adviser until either method would be too late, the old law again holds good, viz., "that he who breaks Nature's laws will in turn be broken by them."

The following methodic plan of treatment is one frequently employed in the service of Dr. T. R. Neilson, at the Philadelphia Polyclinic Hospital, and it has always been a most successful one, especially in having a remarkable absence of complications during its use, and it effects a cure with as great rapidity and certainty as other methods seem to claim.

In every case certain general directions must be given the patient on his first visit, as the abstinence from all kinds of alcoholic

stimulants, the avoidance of everything tending to excite him sexually, and instructions as regards diet. While the diet should be of the simplest kind, it should also at the same time be a nutritious one, as for example, milk, eggs, fish, meats, etc., but strawberries, asparagus, cheese, strong tea or coffee, and highly seasoned dishes are not to be allowed. Anything having a tendency to cause too active a circulation should be interdicted, as excesses in walking, bicycling, or horseback riding; in other words, a condition of rest and repose is the rôle the wanderer should now assume. Concerning smoking, I believe when used in moderation no harm results. At this time it is often desirable to inquire into the state of the alimentary tract, which if not in good order should be put right, as perhaps in the ordering of a mercurial pill, to be followed by a saline; and above all one should never neglect to warn a patient about his eyes in treating a first attack of gonorrhea.

One of the early symptoms the sufferer demands relief from is the ardor urinæ, or scalding when passing urine. In this condition the blandest fluids are scarcely tolerated—distilled water—and it therefore follows, as desirable practise, the modifying or neutralizing the acidity of the urine, and also the increasing its dilution. Diluents are useful in two ways: first, by lessening the percentage of salts in urine; and second, by causing the urethra to be washed out frequently. So many people are sufferers from lithiasis that alkaline lithia waters are often here indicated. A well known wrinkle for ardor urinæ is often very effective in affording relief, and that is having the patient void his urine in a tin cup of hot water—in other words, “pass his water under water.”

An alkaline sedative mixture is also prescribed during this early stage, which modifies the ardor urinæ and diminishes the tendency to frequent micturition and chordee. The following combination is one often employed in the service, and it has been found most effective clinically:

℞ Potassii acetatis, ʒij;  
Potassii bromidi, ʒiss;  
Acidi borici, ʒij, ʒij;  
Tincturæ belladonnæ, ℥xxx;  
Liquor potassii citratis, q. s. ad ʒviii.

M. Sig.: A tablespoonful in water three or four times a day.

In giving your directions to the patient it is of importance he understands that a liberal quantity of water should be taken with his medicine, and I think the remedy is better taken about two hours after meals. The

potash salts are to be presented in such doses as the physician believes best meet the individual case. The boric acid is the antiseptic present, and I have never seen it produce any depression in the above dose of ten grains, while the dash of belladonna has its own selective and soothing action on the mucous membrane. This alkaline plan of treatment should not be pushed so far as to make the urine markedly alkaline, because that would bring about ardor urinæ, just as will a too acid urine. The object to be sought is a bland urine. Perhaps the non-observance of this point is the reason why this plan of medication is not in vogue with many of our best physicians so much as formerly. The above combination is continued until the acute symptoms are in a measure relieved, when recognizing the undisputed controlling influence of the balsamics or anti-blennorrhagics, one, or a combination of them, is chosen and exhibited to the patient, as for example, balsam copaiba and oleoresin of cubebs, say seven and a half minims of each in capsule, one or two to be taken four times a day, depending on the severity of the case. This answers the purpose admirably without causing gastric disturbance, this latter being, however, not so frequent an occurrence, judging by our experience in the service, as one is led to believe from the statements generally met with in the text-books. There can be little doubt that this class of medicinal agents has a local action upon the diseased mucous membrane.

Concerning local medication it is of course simply a question how best to disinfect the urethral mucous surface, and as the products of the existing infection are sources of new infection we are more anxious to disinfect as thoroughly as we may with safety.

Nitrate of silver in weak solution, one to three thousand—nitrate of silver one grain, distilled water six fluidounces—used locally three or four times a day, is an admirable agent to avail one's self of for this purpose; that is to say, it is employed for its antiseptic properties and with no idea of aborting the disease. This should be ordered as an injection from the beginning, providing the symptoms do not point to a too irritative condition. When ordering an injection it is always advisable to see that the patient gets a proper cone-pointed and easily working syringe, of a capacity not greater than three drachms, at the same time teaching him the art of giving himself injections. Nitrate of silver is one of the best agents we have for the confining of

the attack to the anterior urethra, and thereby insuring an absence of complications. The use of nitrate of silver gradually lessens the discharge in amount and purulency by the time the stationary stage is well established, from which time on it becomes thinner, looking milky in character. Sometimes in obstinate cases a solution of one to fifteen hundred is employed, with beneficial results.

Astringents are now desirable, as after inflammation of any mucous membrane there is a condition of relaxation with excessive secretion consequent upon the vascular engorgement, which remains behind the acute inflammation. Particularly does this hold good in this highly vascular part. The favorite astringent used in the service has been zinc sulphate (two or three grains to the ounce) in combination with boric acid (ten grains to the ounce)—these alone, or having added a fractional amount of mercuric chloride (one-tenth of a grain in six ounces). Sometimes Ricord's formula is selected, where the zinc sulphate is decomposed by lead acetate, or occasionally tannic acid and zinc acetate (each five grains to the ounce) are prescribed, yielding an extemporaneous tannate of zinc, a most serviceable injection in many cases.

After such a course of treatment the majority of cases can be dismissed as cured, since the discharge will have entirely ceased, this cessation being readily determined by Thompson's two-glass urine test, and careful microscopic examinations.

In those cases in which the discharge still continues we must then seek for the cause, and here an endoscopic examination is of great value to one who has examined a sufficient number of cases to become trained in its use, as it readily shows circumscribed areas of inflammation, etc., and the necessary local treatment can be instituted, as tannic acid, nitrate of silver, or copper sulphate, according to the predilection of the surgeon. Again, the occasional passing of a sound gently is often the one thing necessary to finish the case; not that we are going to cure a stricture, for none can yet exist, but for the effect of pressure and the maintenance of caliber.

I have drawn attention to this nitrate of silver treatment, not because other methods—as for example irrigation with potassium permanganate solutions when practicable—have not a distinct place and value, but on account of its efficiency as demonstrated clinically, especially in the prevention of complications; and finally Neisser himself, after much investigation, advocated it.

## THE TREATMENT OF GONORRHEA BY INJECTIONS OF ARGONIN.

BY H. M. CHRISTIAN, M.D.,

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To attain success in the treatment of gonorrhea two conditions should be recognized as present in every case: first, the presence in the urethra of the gonococcus, the exciting cause of the disease; second, the catarrhal inflammation of the mucous membrane of the urethra, resulting from destructive action of the gonococcus upon the epithelium.

The method of treatment usually employed at the present day is to first attack the gonococcus with antiseptic irrigations or injections of either bichloride of mercury, permanganate of potash, or nitrate of silver. For the treatment of the second condition astringents such as sulphate of zinc, acetate of lead, or alum are old and time-honored remedies, and on the whole give as a rule very excellent results. The ideal single remedy for the treatment of gonorrhea should be of course one that would meet both of these conditions—*i.e.*, destroy the gonococcus and at the same time cure the catarrhal inflammation of the urethral mucous membrane produced by the presence of the micro-organism in the urethra. Such a drug up to the present time has never been found.

It will be recalled how, upon the discovery of the gonococcus by Neisser some years ago, that bichloride of mercury was the one drug turned to by all physicians as the most rapid and efficient cure for gonorrhea.

The subsequent results following this popular method of treatment are now a matter of history. Solutions strong enough to kill the micro-organism were violently irritating to the mucous membrane of the urethra, increasing epithelial exfoliation and thereby favoring the culture of the gonococcus. On the other hand solutions that were mild and unirritating were found to have no effect in destroying gonococci. There was last year brought before the medical profession by Jadassohn a new chemical compound, composed of a combination of nitrate of silver with casein of milk, called argonin. It is a light powder, soluble in hot water in as high as ten-per-cent. solutions. It is claimed for this drug that it possesses remarkable power to destroy the gonococcus, and it is stated by Jadassohn to have the still further advantage of being absolutely unirritating to the urethral mucous membrane.

The primary attitude assumed by genito-urinary surgeons in general with reference to the merits of any so-called rapid cure for gonorrhea is one of skepticism, and that the writer frankly admits to have been his own position at the beginning of his investigations as to the value of this new drug, so highly lauded by Jadassohn, Lewin, and Meyer.

The earliest contribution to the literature of this subject by an American author is the article in the *American Journal of Cutaneous and Genito-Urinary Diseases*, August, 1896, by Swinburne of New York. This author expresses himself as being "impressed with the fact that the drug was harmless and that it showed marked power in causing the disappearance of the gonococcus."

To my mind the experiments detailed by Swinburne in his "Preliminary Report," in so far as they are supposed to prove the efficacy of argonin in the treatment of gonorrhea, are of very little value, for the simple reason that in every case prior to the use of the daily injection of argonin the urethra was irrigated by a mild solution of permanganate of potash (1:6000).

This use of permanganate irrigations seems to me to have been most unfortunate, for while on the whole his results were satisfactory, it must nevertheless be difficult to state positively whether such results were due to the use of argonin or to the daily irrigations by permanganate of potash.

My own results in the use of this drug are given below, with a full knowledge of how very difficult it is in dispensary and private practise to draw absolutely correct conclusions from statistics. These experiments were conducted at the dispensaries attached to the University Hospital and the Philadelphia Polyclinic. In all the cases careful records were made with reference to the following points:

1. Number of acute cases; number of chronic cases.
2. Time at which the gonococci disappeared after treatment was first employed.
3. Duration of the case, *i.e.*, as far as this point could be satisfactorily determined.
4. Number of cases not at all improved.
5. Number of cases developing epididymitis.
6. Number of cases where discharge returned after apparent cure, and whether such discharge contained gonococci or not.

In conducting these investigations no other drug but argonin was used, and that was ordered in five-per-cent. solution to be used

by the patient as a hand injection; the fluid being held in the urethra five minutes after each injection. Owing to the price of the drug it is impossible to use it in five-per-cent. solution for irrigating purposes.

In total urethritis the solution was employed by the surgeon himself and was introduced into the deep urethra daily, through a catheter.

The number of acute cases treated was 80; chronic cases, 10.

Gonococci disappeared in three days in 4 cases; in five days in 8 cases; in six days in 10 cases; in ten days in 18 cases; in fourteen days in 14 cases; in twenty-one days in 8 cases.

Gonococci persisted over four weeks in 10 cases, and there was an unsatisfactory record in 18 cases.

Apparent duration of the disease: This is the third point noted, and the figures given are approximately correct:

Duration in 8 cases was three weeks; in 20 cases, four weeks; in 25 cases, six weeks; in 20 cases, six to eight weeks.

Record unsatisfactory in 17 cases.

In the fourth point the remedy was of no value whatever in ten cases. It is only fair to state that these were the ten cases of chronic anterior urethritis noted as being under treatment. Swinburne states that he was "impressed with the results obtained in chronic anterior urethritis." In my own hands the drug was of very little if any value in such conditions.

Epididymitis developed in four cases in the fifth point noted.

The records made under the sixth point constitute the most important feature of the investigation. The question of relapse, or return of discharge with or without gonococci after apparent cure, is a most significant one, and one that should receive most careful study before arriving at any conclusion as to the value of a drug in the treatment of gonorrhea.

As regards argonin, Swinburne in his "Preliminary Report" makes the following conservative statement: "The only observations which I have not yet been able to make is the liability of these cases to relapses, and of this a further study must be made."

Out of the eighty cases of acute gonorrhea embraced in this report thirty-two had a return of the discharge after apparent cure; gonococci were found in the discharge in twenty-eight of these cases.

In many of these cases there was an ab-

sence of the discharge for a period of a week or ten days; repeated examinations showed a clear urine, and yet return of discharge followed with reappearance of the gonococcus. The use of argonin would immediately stop the discharge, cause the gonococci to rapidly disappear again, only to break out anew upon discontinuing treatment. All these cases were finally cured by astringent injections.

On the whole the results obtained by the writer in the use of this drug have not been as brilliant as those reported by Jadassohn and other German observers, although they compare very favorably with those reported by Swinburne.

After careful consideration I have arrived at the following conclusions as to the value of argonin:

1. That it is absolutely unirritating and can be used in solutions from one to ten per cent.

2. In the great majority of cases it lessens the discharge very rapidly.

3. Its use is generally followed in a short period by a disappearance of the gonococci.

4. That this disappearance of the gonococcus is not in all cases permanent; in other words there is in quite a large proportion of cases a distinct tendency to relapse, with reappearance of gonococci.

5. That it possesses distinct value as a hand injection in the stationary period of the disease, but is of very little benefit in the mucous stage, or stage of decline.

6. It produced no results in the treatment of chronic anterior urethritis.

The writer would state that he is still using it in his hospital services as an injection in the stationary stage of the disease, and is very much impressed by the remarkable power the drug seems to possess in so many cases of rapidly diminishing the discharge and causing at least a temporary disappearance of all gonococci.

Should the price of the drug ever admit of its being used in irrigation of the urethra it may possibly be found to be of still greater value.

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#### *INTERESTING CUSTOMS OF ENGLISH PHYSICIANS WHICH ARE NOW OBSOLETE.*

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BY J. COLES BRICK, M.D.,  
Assistant Demonstrator of Anatomy, Jefferson Medical College of Philadelphia.

Up until the eighteenth century every physician wore a wig and carried a cane or stick as a badge or insignia of his calling;

and no practitioner would presume to make a call or be seen in public without his mystic wand and powdered wig.

There is something in a stick or scepter which is associated with power or preternatural attributes or authority, which dates back to mythological times. Moses had his rod, with which he struck the rock and the waters gushed forth, Hermes the herald's staff, Mercury the caduceus, Æsculapius his wand, the Roman lictors (hence *licked*) their fasces—down to the mystic bundle of nine twigs, in honor of the Muses, which the famous Dr. Busby used, no doubt to increase the respect of his scholars for them. In the present time the court of St. James has its gold sticks and black rods, the House of Representatives its mace or badge of authority, and even the policeman has his stick.

The physician's cane was long, smooth, and varnished, with a heavy gold knob at the top; and the gold-headed cane which Radcliffe, Mead, Askew, Pitcairn and Baillie successively bore is preserved in the College of Physicians of England. This cane differs from the physician's cane proper, having a cross-bar on the top, while the physician's cane had a knob which was hollow, containing a vinaigrette which the physician held to his nose when approaching a patient, thus protecting him from the poisonous exhalations of the patient. The stick itself was also practically used for the patient to grasp during venesection, tightening and relaxing the hold, thus increasing the flow of blood by muscular action of the arm.

The phlebotomist's staff is of great antiquity; it is to be found in an illuminated missal of the time of Edward I.

Fustigation, or beating with a stick, was believed for many centuries a sovereign remedy for bodily ailments as well as moral failings; and Antonius Musa used this method to cure Octavius Augustus of sciatica. Galen recommended it as a means of fattening. Gordonius prescribed it in certain cases of nervous irritability.

Desault used what he called "club-tincture" on a young man, as related by Sir Astley Cooper, while attending the lectures of Desault and Chopart at the Hôtel Dieu in 1792. A young man was brought in complaining of paralysis of the right arm. Desault, suspecting that the boy was shamming, said unconcernedly, "Take off your hat." The boy instantly obeyed. "Give me a stick," screamed Desault, and he beat the boy unmercifully.

Next to the cane the wig was the most important of his paraphernalia, Dalmahoy being the last to wear one in public. It was a magnificent creation of the peruke-maker's art, and was celebrated in a song of the period. Wadd, the humorous collector of anecdotes relating to his profession, wrote of him:

"Dalmahoy sold infusions and lotions,  
Decoctions, and gargles and pills,  
Electuaries, powders and potions,  
Spermaceti, salts, scammony, squills.

Horse-aloes, burnt alum, agaric,  
Balm, benzoine, blood-stone, and dill;  
Castor, camphor, and acid tartaric,  
With *specifics* for every ill.

But with all his specifics in store,  
Death on Dalmahoy one day did pop;  
And although he had doctors a score,  
Made poor Dalmahoy shut up his shop."

Henry Revell Reynolds, one of the physicians who attended George III, was the last of the silk-coated physicians; he was the Beau Brummel of the Faculty and dressed with the greatest care, refinement, and elegance.

Previous to the reign of Charles II physicians were in the habit of visiting their patients on horseback, sitting sideways, like women. Simeon Fox and Dr. Argent were the last presidents of the College of Physicians to go their rounds in this undignified manner. With "the Restoration" came the carriage of the London physician. In Queen Anne's reign no physician with the slightest pretension to a practise could manage without his chariot and four and even six horses. Although it was only in the reign of Charles II that physicians generally used carriages—though they were used as early as 1563—Stowes' "Survey of London" says of Dr. Langton in that year that he "rid in a car, with a gown of damask lined with velvet, and a coat of velvet, and a cap of the same (such, it seems, doctors then wore), but having a blue hood pinned over his cap; which was a customary mark of guilt, and so came through Cheapside on a market-day." The doctor's offense was one against public morals—he had loved not wisely, but too well.

The cane, wig, silk coat, side-saddle and carriage of the old physician have been mentioned, and his muff we must describe. This was large enough to enclose his forearms and was made of fur, and during cold weather he used it constantly to preserve his delicacy of touch and nice sense of discrimination

when estimating the arterial tension of his patients.

To get some idea of the amount of ignorance of the etiology of disease and of the physiological actions of drugs which physicians possessed during the sixteenth and seventeenth centuries, a glance at some of the prescriptions of Sir Theodore Mayerne, who died in 1655, is sufficient. This man was the most eminent physician of his time, and was physician to two French and three English sovereigns—Henry IV and Louis XIII of France; James I, Charles I, and Charles II of England. He recommended a *monthly excess* of wine and food as a fine stimulant to the system. (In these days this would look like encouraging periodical drunkenness.) His treatise on Gout, written in French and translated into English (1676) by Charles II's physician in ordinary, Dr. Thomas Sherley, recommends a clumsy and inordinate amount of violent drugs. Calomel he gave in scruple doses; sugar of lead he mixed largely in his conserves; pulverized human bones he often prescribed; and the principal ingredient in his gout-powder was "raspings of a human skull unburied." He had a "Balsam of Bats" as an unguent for hypochondriacal persons, into which entered adders, bats, sucking-whelps, earthworms, hog's grease, the marrow of a stag, and the thigh bone of an ox. He also believed in amulets and charms.

Mayerne died in 1655, and two years later Harvey was buried, famous for having discovered the circulation of the blood, the following inscription having been placed on a statue erected in the hall of the College of Physicians:

The circling streams, once thought but pools of blood  
(Whether life's fuel or the body's food),  
From dark oblivion Harvey's name shall save.

Aubrey describes Harvey: "He was not tall, but of the lowest stature, round-faced, olivaster (like waint-scott) complexion; little eie—round, very black, full of spirit; his haire was black as a raven, but quite white twenty years before he dyed. I remember he was wont to drink coffee, which he and his brother Eliab did before coffee-houses were in fashion in London. He was as all the rest of his brothers very cholérique; and in his younger days wore a dagger (as the fashion then was), but this doctor would be apt to draw out his dagger upon very slight occasion. He rode on horse-back with a foot-cloath to visit his patients, his man following on foot, as the



fashion then was; was very decent, now quite discontinued."

In the *Gentleman's Magazine*, vol. xx, for the year 1750, a detailed description and an engraving of a stomach brush may be found, which is in many respects like the *gyromele* now so popular. The idea of the inventor seemed to be based on the principle of the bottle-brush, which was used to cleanse wine bottles before refilling. As we look through the pages of Paret, Sir John Hunter, and other masters of their art, we are led to recall what Solomon said: "There is nothing new under the sun."

#### SURGICAL INTERVENTION IN TUBERCULOSIS OF THE KIDNEYS.

TUFFIER reports fifteen operations performed on the kidneys for tuberculosis, about a tenth of his operations on these organs (152 in all), in the course of the last eight years. He only operates when all medical treatment has been found ineffective, and considers the three principal indications: intense hematuria, pains and evidence of infection, and intoxication. Benign hematuria does not require intervention, but only severe cases, with sufficient loss of blood to weaken the patient to a dangerous degree. He has operated twice under these conditions. The first was a woman of forty-two, with dangerous crises of hematuria and consecutive anemia, on whom he performed nephrectomy. The ablation of the left kidney disclosed a number of tuberculous abscesses in the parenchyma. The patient has never had a recurrence of the symptoms, and when seen three and a half years afterward was in perfect health. The other case was a woman of twenty, with severe hematuria for three years previously. After lumbar incision, and the discovery of a voluminous kidney, he performed nephrotomy, and the patient continued eighteen months without a recurrence of the trouble. Since then she has had slight returns of it at times, but not enough to warrant another intervention.

Tuffier has performed four operations to relieve excessive pain. The first case was a woman, whose sufferings had much reduced her. The kidney was found riddled with tubercles, and removed; the ureter seemed intact. She recovered finely, and when seen five years later was still in perfect health. One peculiarity of this case was the sudden appearance of obesity after the operation, which assumed such proportions as to be

actually pathologic; this also occurred with another patient. This condition gradually passed away.

The second operation to relieve pain was performed on a young Russian woman, who had been examined by Billroth of Vienna, Wood of London, and Erb, all of whom at first ascribed her troubles to neuralgia, and later to lithiasis, as did also Senator and Israel at Berlin. Finally Gennes discovered the Koch bacillus in the urine, and Oertel at Munich and Czerny confirmed the diagnosis of tuberculosis, and advised an operation after the whole range of local applications had been tried in vain. Her renal pain was so severe that it was impossible for her to walk, and there was also frequent desire to urinate. Morphine alone relieved her. The pain dated from a fall in 1892, after which she had suffered from pain in the kidneys, with frequent crises, becoming worse and worse. Tuffier performed nephrectomy by the lumbar route January, 1896, freeing the patient from her troubles. The ureter was found dilated and granulous, and by the end of the year, the desire to urinate returning, she consulted Israel again, who found by cystoscopic examination a tuberculous patch at the entrance of the ureter, showing descending infection.

A third patient was operated upon and restored to health, except for a slight frequency of mictions and trifling hematuria. When a calculus forms the pain is atrocious, and in one case had driven the patient, a former pupil of his, to morphinomania. The calculus was the size of a large nut and was found in the lower end of the ureter. The suffering had undermined the patient's health to such a degree that he did not long survive the operation.

Tuffier has performed nine operations to relieve the accidents of tuberculous pyelonephritis, acute or chronic; but these operations are merely palliative and with the sole hope of affording temporary relief. They emphasize anew the importance of operating at once when the diagnosis has been established with certainty. He advises nephrectomy as preferable both in the hematuric and painful variety. His experience certainly demonstrates the existence of primary renal tuberculosis, which some have denied; and the perfect health of some of his patients, operated on four, five, and six years ago, is conclusive evidence of the value of intervention in these cases.—*Journal of the American Medical Association*, March 20, 1897.

# The Therapeutic Gazette

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## Leading Articles.

### THE CURATIVE INFLUENCE OF PARACENTESIS UPON HEPATIC CIRRHOSIS.

If there is one condition of the liver associated with organic change and with which we associate in our minds the presence of an incurable affection, it is that which is known as hepatic cirrhosis, particularly when it is associated with grave secondary changes in the abdominal organs or in more distant portions of the system. A large proportion of the cases of marked ascites which present themselves for relief in hospitals and private practise depend upon this lesion of the liver, and physicians are universally in the habit of attempting to remove this effusion with the object of relieving the patient's distress and discomfort, but with little thought that in getting rid of the fluid they are accomplishing anything more than very temporary relief. A careful study of a series of such cases convinces us, on the other hand, that if the fluid is removed by means of paracentesis the general tendency of this treatment is to

prevent the reaccumulation of the liquid; and further than this, by the removal of pressure exercised upon important organs it improves the patient's condition and perhaps even modifies the pathological process which has taken place in the hepatic tissue. Our attention has once more been called to this matter by a paper by Dr. Chandra Sen which is published in the *Indian Medical Gazette* for April, 1897. In this article he mentions two cases which entered the wards of the hospital with which he was connected and were treated by the ordinary diuretics and purgatives, with but little advantage until they were tapped, immediately after which procedure they began to improve. In neither of them did the effusion recur, and the patients were living many months after the last tapping.

Dr. Sen is wrong, however, in his statement that this method of treatment and these results are new. It has been a well recognized fact for many years that in a certain proportion of cases the effusion when once removed does not return, but what is still more important and what has not been recognized as completely as it should be is the fact that the tapping exercises a distinct beneficial influence over the patient's general condition. This point was emphasized several years ago in an article which the writer of this editorial published in the THERAPEUTIC GAZETTE, in which he discussed the arguments which have been advanced for and against paracentesis abdominis, and showed that modern methods and modern views were very distinctly in favor of removing serous effusions by tapping rather than by the older methods of purgation and the production of excessive diuresis.

MacDonnell of Montreal was during his lifetime one of the most earnest advocates of tapping for cirrhosis, and he reported in the *Medical News* for October, 1889, the case of a butcher who had been tapped repeatedly, sometimes as frequently as every two days, and from whom no less than 6400 ounces of fluid were withdrawn in about four months for ascites due to alcoholic cirrhosis. The fluid gradually failed to accumulate, and to the surprise of MacDonnell the patient practically recovered in the course of a year, becoming a hearty man. In the same article MacDonnell also quoted another case in which nine thousand ounces of fluid were withdrawn, and after this complete restoration to health took place. It is evident, therefore, that paracentesis abdominis offers more to the patient than the mere removal

of fluid which by reason of its pressure is causing discomfort and interference with the respiration, circulation, and digestion.

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*THE EFFECT OF ANESTHETICS UPON  
BODILY TEMPERATURE.*

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On several occasions in the editorial columns of the *THERAPEUTIC GAZETTE* we have called attention to the importance of maintaining bodily temperature by the use of the external application of heat in surgical operations during the time that an anesthetic is being administered, and as long ago as 1888 the writer of this editorial published in the May issue of the *GAZETTE* for that year an article upon some experiments to determine the influence of etherization upon normal bodily temperature.

With reference to the use of external heat, in this paper it was found that in a series of twenty-six cases the administration of ether caused a very marked fall in bodily temperature. Thus in one series of cases the average fall of temperature was from  $2.5^{\circ}$  F., the greatest fall being  $4.4^{\circ}$  F., and in another series in which the temperatures were taken in patients who were under the surgical care of the late Dr. D. Hayes Agnew it was found that the fall of temperature amounted on an average to  $2.32^{\circ}$  F., the greatest fall being  $3.15^{\circ}$  F. These temperatures were taken in the rectum, the previous ones named having been taken in the axilla. The operations varied in all degrees of severity.

Our attention has been directed to this matter anew by a paper which has been published in the March number of the *American Journal of the Medical Sciences* by Dr. Allen of Cleveland, in which he details the results of a number of experiments which he made upon dogs to determine what influence etherization had upon their blood-pressure and bodily temperature. The results which he obtains are practically identical with those which the writer of this editorial obtained nine years ago, but there is one possibility of error in his conclusions which we think has been overlooked, namely the fact, well known to those who have worked with animals in the physiological laboratory, that placing a dog upon his back with the limbs fixed in the manner usual when making an experiment always results in a considerable fall of temperature, unless the bodily heat is maintained by a covering or by applications of heat. In other words, an animal lying exposed upon a

table and absolutely uninjured and not receiving any anesthetic will have a very considerable fall of temperature in the course of one or two hours. We believe that the custom of covering the patient with a very small amount of clothing during an operation and exposing large portions of the cutaneous surface to the air during the operation greatly increases the danger of secondary bronchitis and congestion of the important viscera, particularly the kidneys; while many physicians exclaim at the imprudence of the patient or nurse if they found the patient was lightly covered when lying in bed under ordinary circumstances, though they permit almost no covering at all during a prolonged and exhausting operation accompanied by serious shock to the vital centers.

We are glad that Dr. Allen has once more called attention to this important fact, upon which we do not think that too much emphasis can be placed. During the operation the patient should be more warmly covered than when lying in bed prior to the operation, and if external heat properly applied is used during operative procedures the loss of heat will be prevented, and the old saying about the door being locked after the horse is stolen will not find a daily illustration in the surgical amphitheater.

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*INTRAVESICAL INJECTIONS OF STERILIZED AIR FOR TUBERCULAR CYSTITIS.*

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One of the most interesting developments of modern surgery has been the fact that the opening of the abdominal cavity when the peritoneum and viscera are affected by tuberculosis results in cure in a large proportion of cases. At first it was thought that the iodoform which was usually dusted into the abdominal cavity under such circumstances was entirely responsible for the good results which were obtained, but it was not long before it was found that the introduction of air through an opening which had been made was distinctly curative in its effects. Following this certain operators with more or less good result treated cases of tubercular peritonitis, not by making an incision in the abdominal wall, but simply by introducing a cannula and injecting sterilized air into the peritoneum. More recently our attention has been called to a new application of this method of treatment. Thus Ramond has treated three cases of tubercular cystitis which otherwise seemed

incurable by the injection of sterilized air into the bladder. The method of procedure is as follows: The instruments and the catheters are carefully sterilized, and a syringe such as is used for tapping hydrocele and having a capacity of three ounces is employed. Over the mouth of the syringe is placed a small tampon of cotton so that the air from the barrel of the syringe as it enters must be filtered through the cotton. The urine having been evacuated, three ounces of sterilized air are injected by means of a hollow sound, and future injections of from six to nine ounces are given with considerable force. The air injected is allowed to remain in the bladder for a period of five minutes, when it is allowed to escape by means of the sound. Should pain be produced by this method the operation is not resorted to again for two or three days.

The question as to how this treatment is of advantage is scarcely possible to answer. The air may have some deleterious influence upon the tubercle bacillus, or some favorable influence upon the inflammatory processes associated with its presence. In any event Ramond is enthusiastic in urging its employment, particularly in those cases which refuse operation or are too feeble to have any operation performed.

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#### INCONTINENCE OF URINE IN CHILDREN.

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The difficulty in overcoming certain cases of incontinence in children is recalled by a somewhat elaborate, well-systematized paper by Rochet and Jourdanet (*Gazette des Hôpitaux*, January 9, 1897) who classify cases of incontinence in children under two general headings:

1. Those in which incontinence is the expression of a distinct local lesion, or those in which it develops in the course of a general disease, of which it is an expression of minor importance. Such forms of the disease are called symptomatic. The appropriate treatment is that directed to the general condition, as post-typhoidal adynamia, or to the local exciting cause, as a rectal polyp or balano-posthitis.

2. Those in which incontinence is the only symptom. Such cases are called essential, though in reality they more correctly would be named neurotic. The term "incontinence" is misleading, since this implies a constant dribbling; whereas in children it nearly al-

ways assumes the form of involuntary urination.

The essential incontinence of children is always associated with a neurosis, usually hereditary; indeed Guyon considers wetting the bed a pathognomonic sign of this condition. It may be, perchance, the only sign, though it is often associated with other manifestations even more characteristic.

The condition itself may be directly brought about by undue contractility of an irritable detrusor muscle, or by hyperesthesia of the mucous membrane of the prostatic urethra, or by thoughts or ideas which produce frequent urination by day and incontinence by night.

In the class of cases in which the neurosis is manifested in the form of spasm of the vesical sphincter, this may result in either partial retention, which necessarily favors wetting of the bed, or of complete retention, which would cause a true diurnal and nocturnal dribbling (retention with overflow). Very exceptionally the neurosis may be expressed in the form of a paresis of the sphincters; this also would give rise to constant dribbling. In examining patients it is important to bear in mind the possibility of retention with overflow. This condition would be detected at once by catheterization, and if the injected fluid were returned through the catheter with slight force the surgeon would at once suspect paresis in the detrusor muscles. The introduction of a catheter will also detect atony or hyperesthesia and spasm of the ureteral sphincters.

In case urethral exploration remains negative abnormal sensibility to distention would be suggested as a possible cause of incontinence. Injection into the bladder would at once settle this question, since the viscus if hypersensitive to tension would reject the liquid when but a small amount had been driven in. In case exploration remains negative the incontinence may be classed as psychic.

The treatment should, of course, be primarily that applicable to neuropathies. Belladonna is particularly indicated in those cases which are probably due to an over-excitability of the detrusor muscles of the bladder. No one has been able to suggest a better means of administration than that first proposed by Trousseau. The initial dose is one-sixth of a grain of the extract given in the evening at bedtime. After several days this dose is doubled, the patient finally taking as much as from one-half to one grain, the surgeon carefully watching for toxic symp-

toms and stopping the medicine very gradually if the desired effects are obtained. Other medications possibly serviceable in the same condition are bromides, chloral, camphor, lupulin, lactucarium, and opium.

When the cause of incontinence is immediately traceable to a hyperesthetic condition of the mucous membrane of the posterior urethra, general sedatives are still serviceable. Local treatment is, however, especially indicated, instillations of cocaine or of silver nitrate and the repeated passage of a cold full-sized sound being particularly useful.

The very rare cases of incontinence due to anesthesia of the urethro-vesical region, practically always due to lesions of the spinal cord, are said to be benefited by cauterization of the posterior urethra. Trousseau's advice for atony of the vesical sphincters is that strychnia should be given in fairly full doses morning and evening, continuing the medicine for two days and then allowing two days of rest. The quantity of the drug is gradually increased. Guyon in this class of cases has been particularly successful with electricity. An electrode is introduced, insulated excepting at the end. The other electrode is placed either upon the pubis or the lumbar spine, and the faradic current with slow interruptions is employed. Each treatment should last about five minutes; this directly exercises the weakened muscles and restores their tonicity. To control the psychic influences, especially the dream of micturating, various means are serviceable. Thus, the slumber may be rendered less profound by means of tea or coffee. These agents are, however, not to be commended in the treatment of neuropaths. Another method is to wake children regularly during the night. This method gradually accustoms the bladder to regular evacuations. The number of wakings should be proportionate to the quantity of urine secreted and to the frequency of micturition during the day. Punishment is successful in some cases, since it makes a powerful impression upon the brain. Suggestion has been utilized in other ways: thus painful subcutaneous injections have been employed, or operations have been threatened. Finally hypnotic suggestion has been used, Liebeault having claimed by this to have cured cases. The first step in this treatment is to procure hypnotic sleep. It is then suggested that the child should rise at certain hours to urinate; gradually the number of risings by night is diminished until finally they are abolished entirely, the child

being forbidden to urinate until it wakes in the morning.

The pure psychopathic incontinence dependent upon dreaming of micturition is probably the most troublesome of all to cure. Psychic treatment is alone efficient. The cure is usually spontaneous in these patients and accomplished about the time of puberty, when amorous dreams replace those of micturition. These patients often become congenital hypochondriacs who swell the ranks of those who suppose themselves suffering from spermatorrhea, and who after gonorrhoea hypnotize themselves concerning the urethra and are thus able to see a constant discharge of semen.

The cases of incontinence due to retention of spasmodic origin are readily cured by the regular passage of catheters and sounds. Once daily the bladder is completely evacuated. Once or twice a week full sized sounds are passed after the catheter. Treatment is continued for about a month, amelioration is usually rapid, and the cure complete. Should incontinence of overflow result not from spasm of the sphincter but from paresis of the detrusors, the only treatment would, of course, be faradization.

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## Reports on Therapeutic Progress

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### SULPHUR IN SEPTIC AND TUBERCULOUS SORES.

MILLER writes on the use of sulphur externally in the London *Practitioner* for February, 1897. He urges its use in surgery, and begins by telling us that sulphur is non-poisonous. This might go without saying. The drug and its products seem to act only locally, and there is no general effect on the patient that the writer has seen; but he has used it only in small quantities.

Sulphur applied to a recent wound or granulating surface gives rise to various chemical products—sulphuric acid, sulphurous acid, and sulphureted hydrogen. These are probably all caustic, the first most powerfully; they are all germicidal, doubtless also in varying proportions. The presence of two of these products is manifest to the sense of smell. In a few hours after the sulphur has been applied there is a distinct odor of sulphureted hydrogen and of sulphurous acid. If sublimated wool is employed as part of the dressing the presence of the former is also made evident by the blackening of the wool. The sulphuric acid manifests its pres-

ence mostly by its caustic action. Any sloughing that occurs is most likely due to its action, as stated by Mr. Lane.

It is by its products therefore, and not directly, that the sulphur acts on the tissues. Mr. Lane says that the products of sulphur are so powerfully caustic that the drug must be used "in small quantities and with discretion." His reported cases show this. The writer confirms this statement. He has only twice used the drug freely. In both cases there was a good deal of pain produced of a burning character, though without any rise of temperature, and there was considerable sloughing. Though no harm ultimately resulted from the sloughing, yet the writer thinks it was unnecessary. In one case the burning pain and sloughing continued for some hours after all trace of the sulphur had been removed by washing out the wound. The cases were excisions of the elbow and ankle respectively for tuberculous disease with septic infection.

The sulphur products are germicidal. The sulphur, therefore, is a powerful antiseptic. Mr. Lane says that it destroys all organisms, both "free in a cavity" and also in the tissues. This the writer confirms. In his experience the sulphur destroys very thoroughly both septic and tuberculous organisms. And as we know that these, more especially the latter, tend to penetrate the tissues, the production of a healthy surface on wound or sore must mean that the germicidal agent has penetrated somewhat into the tissues also. It is easy to see how this may occur. The sulphur lying in contact with the tissues undergoes chemical change; the gaseous products pass off into the dressings and in the discharge. That they do so is evidenced by the smell to which the writer has already referred, and by the blackening of mercurial dressings. The sulphuric acid, however, acts on the tissues more directly and cauterizes them, doubtless at the same time destroying any organisms with which it may come in contact.

Now one might say, Why not use sulphuric acid alone and directly, seeing it is the most powerful and important agent, and not the sulphur, which gives rise to other and unpleasant products also?

There are two special advantages in the way that the sulphuric acid is produced from the sulphur: Only a small quantity is produced at a time, and the caustic action can therefore be regulated; in the second place the production is gradual, going on for a considerable period, and therefore is more

powerfully germicidal. Sulphuric acid applied directly, however dilute, would at once act on the tissues and spend itself in its caustic action; it would penetrate to a certain distance according to the strength and amount of acid applied, but its action would then quickly cease. On the other hand, in the case of the sulphur application, we have a continuous action going on for many hours—sometimes for two or three days—with very little caustic action. In a word, with the acid we would get the maximum of cauterization and the minimum probably of germicidal action, while with the sulphur and the continuous formation during many hours of its chemical products the result is most likely the other way. It is possible also that the two other products are more powerfully germicidal than caustic, and they may penetrate the tissues also. Whatever is the explanation, however, the fact remains that wounds treated with sulphur quickly become aseptic, and tubercle bacilli also seem to be destroyed in them.

The action of sulphur is more powerful on recently incised wounds. This requires neither illustration nor comment, except that surgeons should be very careful in applying the sulphur in operation cases. The writer is inclined to think that children's tissues are specially easily cauterized; anyway, children more frequently complain of the burning pain than adults.

The action of sulphur is mitigated by mixing it with glycerin. Such a mixture, therefore, with the addition perhaps of some carbolic lotion, makes a good injection for septic or tubercular cavities. The constituents are common and easily obtained, and can be readily and quickly mixed by any one.

With Mr. Lane's last point, that twenty-four hours is generally quite sufficient time for the sulphur to produce its destructive action in a recent wound, the author agrees; but in septic and tuberculous sores a longer period is necessary. Each case, however, must be judged by the effect of the applications. In his experience two or three applications have been usually sufficient to produce a healthy and healing surface. He then concludes his paper by describing how the sulphur may be applied:

On an open surface, whether of a recent wound (as at an operation) or of an ulcer, the sulphur in fine powder should be gently rubbed in with the finger, and the wound or sore dressed with an antiseptic dressing. No effect is produced on the surgeon's fingers whatever.

In the case of an abscess or other septic or tuberculous cavity the sulphur is injected suspended in glycerin (one drachm to one ounce).

The consequences have been already described: first, a slight burning pain; second, a strong-smelling discharge (from the gaseous products of the sulphur); third, a slough, varying according to the character of the wound (recent or granulating) and the amount of sulphur applied; and lastly, there is the therapeutic (germicidal) action. The burning feeling, if complained of, can be mitigated or removed by cocaine. As a rule, when the slight slough produced by the sulphur separates (in a day or two) healthy granulations are manifest, and the writer not infrequently has seen sores heal in a week or two that had resisted all other treatment for months.

Mr. Lane mentions in his papers having used this drug in cases of cancerous and sarcomatous ulceration and stomatitis with benefit. He states that he can say nothing on these points, not having employed the "sulphur cure" in such cases.

#### *THE ADVANTAGES IN THE TREATMENT OF SYPHILIS AT THE HOT SPRINGS OF ARKANSAS.*

In the *Journal of the American Medical Association* of February 6, 1897, HAY writes of these important Springs and describes their characteristics. In regard to the local methods of treatment he tells us of the patient that he is first instructed as to his diet, which is to stop eating all sweets and acids; his mode of living, which is to keep regular hours; stop smoking and chewing if addicted to the use of tobacco; and abstain absolutely from the use of all intoxicating liquors. The next step is prescribing his medicines and baths. The inunction method is used almost exclusively by the physicians at the Springs, taking the official fifty-per-cent. ointment and usually dividing an ounce into eight, six, or four papers, and rubbing in the contents of one paper each day, according to the exigencies of the case.

The bath is then prescribed, and the general routine for the day is as follows: The patient arises at 7 A.M., breakfasts at eight, then allows from two and one-half to three hours to elapse so that digestion is thoroughly established; goes at 11 A.M. to his bath, which consists of immersion in the hot water contained in porcelain-lined tubs from six to twelve minutes at a temperature from 94° to

96° F.; at the completion of which he is thoroughly rubbed down by his attendant until the skin glows from the stimulation of the peripheral circulation. He is then wrapped in his bath robe and passes into a lounging-room that is kept at a temperature of 90° F. He remains there from thirty to sixty minutes; and it is while in this room that the inunction of mercury is applied while the skin is active and the pores open, in the following manner: The patient sits astride of a straight-back chair with arms folded over chest and back exposed; the attendant with his hands encased with rubber mittens spreads the ointment over the entire surface of the back; then standing by the patient's side, with a long sweeping motion, exerting an equable pressure, distributes the ointment evenly, and continues until the back seems to become quite dry, which takes generally ten to twenty minutes, depending on size of inunction. The patient then puts on a light gauze shirt called the "mercury shirt," which is worn constantly under his other garments and is never washed or discarded until he has finished his course. This naturally in the course of a week or so becomes quite well saturated with the ointment and is the source of constant absorption. The patient then passes into another cooling-room kept at a temperature of 80° F., and after remaining thirty to forty minutes returns to his room and lies down before luncheon for about one hour, and he has finished for the day. If iodide of potassium is administered it is generally given in the saturated solution or fifty per cent. with some adjuvant like essence of pepsin. The writer himself prefers the fifty-per-cent. solution, and uses essence of pepsin, as it protects the stomach, aids digestion, and you do not witness any of the disagreeable gastric symptoms like those produced by the saturated solution alone. Diaphoresis is not encouraged in the bath during the inunction course, because as the emunctories are filled with mercury any excessive sweating would expel what we want absorbed. After saturation is produced the mercury of course is discontinued, at least until the symptoms all subside. About five or six days before the patient takes his departure for home he is instructed to take about as many vapors in addition to the plain baths, which are detailed as follows: Plain baths ten minutes at 100° F.; then placed in a vapor closet for five minutes, standing in a vapor arising from water at about 150° F. He is then released and

passes into the hot room kept at 120° F., and remains from five to ten minutes. While in the bath and hot room he is instructed to drink the hot water freely. After passing through this you can well imagine the perspiration must be flowing quite freely. He is then removed to the first cooling-room above referred to, kept at 90° F., wrapped up thoroughly in his bath robe, and allowed to cool off. The day before departure, especially if the patient lives in a cooler climate, a plain warm bath is administered, and followed by an alcohol sponging to close the pores.

This is a complete synopsis, as briefly as the writer can state, of the methods.

Before closing he speaks of the administration of mercury and iodide of potassium. There is no place on this continent where such enormous doses of either of these drugs can be given and produce such slight and mild constitutional disturbances as at the Springs. Patients frequently come here who cannot take specific treatment at home, and tolerate both mercury and potassium while taking the baths without suffering any inconvenience. As high as 1000 grains of iodide of potassium have been given in a day at the Springs. The writer recently had a case of cerebral syphilis in which he administered 600 grains a day, the patient's appetite remaining good, bowels regular, and the drug producing only the ordinary weeping of the mucous surfaces.

That these waters do possess superior solvent and eliminative properties he contends. It is a common experience to have patients present themselves suffering from the baneful effects of mercury, gums tumefied, eroded, and bleeding upon slightest pressure, when by the administration of a few vapor baths the inunction course can be instituted and continued without any distress. But a great many of these cases are not due to saturation, but to their former physician's neglect of observing the condition of the teeth before starting them on a course of mercury; and the stomatitis is of local origin caused by the accumulation of tartar or a decayed tooth. Their system is not under the influence of mercury at all, and can instantly be relieved by sending them to a dentist. The reason why such large doses of mercury and potassium can be tolerated at Hot Springs is due to the important part the skin takes in the elimination of these drugs. This is a fact discredited by a great many physicians and ridiculed by not a few; but the

author believes it is equally as important as the kidneys.

Ronovitch in 1895 made a series of experiments upon a number of patients to whom mercury was being administered in some form. "A Roman hot bath was used for twenty minutes to induce perspiration, and equal quantities of sweat and urine were used for examination. He concluded that the elimination of the drug through the perspiration is much greater than has hitherto been supposed. A relatively larger quantity was excreted by the sweat than by the urine, but this only in cases where mercury was introduced into the system by friction. This the author explains by the retention of the drug in the sudoriparous glands, friction causing it to be pushed into the glands before it had time to enter the circulation; but the quantity was the same in the sweat and urine of patients treated by injection."

#### SALINE INJECTIONS.

LOCHELONGUE (*Thèse de Paris*, No. 6, 1896-97) traces the history of this treatment from its introduction by Joehrnichen of Moscow in 1830 to its discussion in the Academy of Medicine and Society of Biology last year. In infectious diseases the injections are invariably followed by a well-marked rigor like that of pneumonia, the temperature rises, perhaps to 105.4° F., with a quick pulse and panting respiration. These symptoms generally improve, perspiration sets in freely, and in from three to four hours a feeling of comfort supervenes, the headache disappears, the temperature rapidly falls to normal, the emunctories become active, and a veritable polyuria, or occasionally a profuse diarrhea, is established. If this improvement be not permanent another injection generally makes it so. Unhappily the system is sometimes so profoundly infected that death is hardly, if at all, postponed. The experiments hitherto made do not warrant any conclusions as to the action of these injections in intoxications. Nevertheless in typhoid fever, scarlatina, etc., as well as in diabetes, uremia, and paroxysmal tachycardia, they have been followed by improvement of the general condition, lowering of temperature, abundant diuresis, and increase of blood-pressure. In general the subcutaneous method is to be preferred. Venesection may precede the injection, and is indicated in uremia.

MOURETTE (*Thèse de Paris*, No. 40, 1896-97) points out that intravenous injection of saline



fluid ameliorated the condition of a patient of Delbet's whose heart was apparently at fault, and that a typhoid patient of Widal's, twice benefited by a subcutaneous injection, succumbed during an intravenous one; he also mentions a fatal case of Chauffard's from the same cause. He concludes that intravenous injection should not be employed if it is possible to wait for an hour or two; subcutaneous injection, though slower, is equally sure, and from it no accident has been reported.

FORMEAUX (*Thèse de Paris*, No. 82, 1896-97) discusses the subcutaneous method very fully, both from the experimental and the clinical point of view, and gives a detailed and illustrated description of the technique. He agrees that the subcutaneous method is as efficient and less dangerous than the intravenous, and advocates the injection (about 600 grammes) as often as may be indicated during careful observation day and night in diffuse hemorrhage; fever is no contraindication; hypothermy is not to be feared. Moreover, they may be used before or after operation on anemic subjects by the surgeon, and should be in readiness during any intervention that is likely to be protracted. As a general tonic before, and more especially after, operative treatment a daily injection of a more concentrated solution—two per cent. of neutral phosphate of soda (Crocq)—may be employed. In grave asthenia Cheron injects every two or three days five to ten grammes of a solution containing one part of crystallized carboic acid and two of chloride, eight of sulphate, and four of phosphate of soda to 100.

BARBIER (*La Semaine Médicale*, 1896, p. 488) reported to the Société Médicale des Hôpitaux that in intestinal infections of children at the breast a 7-5 per mille solution injected under the skin of the abdomen, in quantities not exceeding in all thirty cubic centimeters in the twenty-four hours, apparently stimulated the entire system by increasing the blood-pressure and raising the temperature; and patients in a state of collapse, with pinched nose, half-closed eyes, and cold extremities, rallied after one or more injections. The treatment seems to him to be indicated in infectious enteritis with hypothermy, and in chronic cases with loss of strength and low temperature, but has no effect on the diarrhea, general nutrition, or any pneumonia other than those of collapse.

HAYEM says that while the injection of saline solution is one of the most powerful means

of restorative treatment, and is indicated in all choleric conditions, it would hardly have any beneficial influence on gastro-intestinal dyspepsias.—*British Medical Journal*, Feb. 14, 1897.

#### HASHEESH (*CANNABIS INDICA*) AS A CAUSE OF INSANITY.

HYSLOP gives a review of Mental Diseases in the London *Practitioner* for February, 1897. In its course he remarks that hasheesh as a cause of insanity is the subject of a valuable report by Dr. Warnock, the medical superintendent of the Cairo Lunatic Asylum. He concludes that no doubt in quite a considerable number of cases hasheesh is the chief if not the only cause of the mental disease. Hasheesh insanity can scarcely be diagnosed by its clinical characters alone. Sudden and rapid recovery on abstinence from the drug is the most pathognomonic symptom. He classifies the usual types of hasheesh insanity as being: (a) Hasheesh intoxication: An elated, reckless state, in which optical hallucinations and delusions that devils possess the subject frequently exist. Sometimes the condition amounts to a delirium, which is usually milder, more manageable, and less aggressive than that of alcohol, and exhibits none of the ataxic phenomena of the latter. Recovery takes place in a day or less, and the patient usually recognizes the cause of his excitement. In connection with these cases Dr. Warnock raises the interesting medico-legal question, "Are such patients to be held responsible for crimes committed during the hasheesh intoxication, as ordinary drunkards are? or are they absolved from responsibility, as being temporarily insane? Persons chronically insane from drink are held to be irresponsible for criminal acts, temporary intoxication on the contrary being no plea. Will the same principle be applied to hasheesh crimes?" (b) Acute mania: In this type terrifying hallucinations, fear of neighbors, outrageous conduct, continual restlessness and talking, sleeplessness, exhaustion, marked incoherence, and complete absorption in insane ideas, are the prominent symptoms. Such cases last some months and do not always recover. (c) Weak-mindedness with acute outbreaks after each hasheesh excess: These cases are very numerous. While in residence such patients are usually quiet and well behaved and only betray the impaired state of their brains by being over talkative, easily pleased, lazy, anergic, excitable on small

provocation, unconcerned about their future, and willing to stay in hospital all their lives; they show no interest in their relatives, and only ask for plenty of food and cigarettes. After being discharged such cases soon return in a condition of excitement—in fact, in a mild form of type *b*. They then talk rapidly, and rush about pouring torrents of abuse on those near them, curse and rave on slight provocation, are sleepless, and forever moving in an aimless way; are urgent to be released, deny the use of hasheesh at one moment and boast of its wonderful effects the next. Besides these types there are numbers of cases of chronic mania, mania of persecution, and chronic dementia, alleged to be produced by hasheesh.

Dr. Warnock also quotes some of the conclusions of the "Indian Hemp Drug Commission" of 1893-94. Its moderate use has no physical, mental, or moral effects whatever; its excessive use, on the other hand, injures the physical constitution, and may cause dysentery and bronchitis; it tends to weaken the mind, and may sometimes cause insanity; it induces mental depravity and poverty, but rarely crime. The injury caused by excessive use is confined almost exclusively to the consumer, and scarcely affects society. In India hemp drugs are regarded as causing insanity more rarely than has popularly been supposed, and the resultant insanity is usually of a temporary character and of shorter duration than that due to other causes.

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#### OPERATION FOR PERFORATION IN TYPHOID FEVER.

An extremely interesting discussion recently took place at the Royal Medical and Chirurgical Society on the operative treatment of perforation in enteric fever. Two papers were read on two cases, on each of which Mr. Bowlby operated. Both the patients were convalescent and both recovered. In Dr. Lauder Brunton's case perforation occurred, but the symptoms were not nearly so severe or so suggestive of perforation as in Dr. Herringham's patient, in whom laparotomy revealed the fact that there was no perforation, peritonitis, or other apparently sufficient cause for the extreme gravity of the symptoms. The colon was packed with scybala, and this appears to have been the cause, for they were removed by enemata directly the operation was over, and the patient straightway recovered. Constipation and subsequent colic must therefore be borne in mind

as a possible cause of alarming symptoms, and should render caution necessary in allowing long-continued inactivity of the bowels to occur in typhoid fever; for such a course may bring about results closely simulating the accident (perforation) which prompts its adoption. The two cases form a striking contrast, and seem not only, as Dr. S. Phillips pointed out, to emphasize the difficulty of diagnosing with any certainty whether perforation has or has not taken place, but also to throw doubt on the view that perforation may be recovered from spontaneously. In Dr. Herringham's case the symptoms justified an emphatic diagnosis of perforation, and had not operative proof that no perforation existed been provided it would fairly have been regarded as a case in point.

Mr. Shield referred to an interesting case in which the symptoms of perforation of the bowel occurred after typhoid fever, but were found to be due to perforation of the gall-bladder.

Both the patients referred to in the papers were convalescent and in good condition, and therefore bore the operation well; and it is in such cases, as Dr. Goodall pointed out, that operative measures may be expected to succeed. But it must be borne in mind that the majority of cases of perforation in typhoid fever are met with during the course of the fever when the patient is in a most unfavorable state for operation. Cases for operation, therefore, must be carefully selected, or the operation, on which Dr. Brunton and Mr. Bowlby are to be sincerely congratulated, will be discredited rather than established.—*British Medical Journal*, Feb. 14, 1897.

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#### ON THE TREATMENT OF ECZEMA IN CHILDREN.

BULKLEY, the well known dermatologist of New York, contributes to the *Archives of Pediatrics* for February, 1897, a very practical paper on this topic. He begins by asking the question: "Does it ever do harm to cure an eczema?" In answer to this the writer says that in his practise of over twenty-five years he cannot recall a case where harm resulted from the proper treatment of an infantile or other eczema. Among 10,000 miscellaneous skin cases in his private practise, recently analyzed, there were 3201 of eczema, and of these 375 were under five years of age. Many of these cases have been watched for years, and are only improved in health by the proper cure of the eczema.

"To what extent should constitutional treatment be relied on?" Constitutional treatment, including diet and hygiene, is the main reliance as to the cure of a large proportion of the cases of eczema in young children. While in a certain small proportion the eruption may be almost wholly local in nature and origin, and yield to local measures and then remain absent, in the larger proportion it will tend to crop out again and again unless proper constitutional measures are taken.

"Is eczema the result of a diathesis?" This was the opinion of many dermatologists some years ago, but at the present time it is difficult to define scientifically in what a "diathesis" consists, and he thinks that very few now hold to any fixed diathesis as a cause of the eruption.

"What are the predisposing causes?" Primarily, debility of tissue, which may be either hereditary or acquired; secondarily, very many internal causes may be classed under (1) Dietetic, (2) Assimilative, (3) Neurotic; and the external under (1) Climatic, (2) Hygiene. The limits of this article forbid any full discussion of these topics (which might be very extended) or of the consideration of the various exciting causes of eczema; but a brief explanation may be offered of some points relating thereto. Local irritants, however severe, are incapable of exciting true eczema, except in those so predisposed; a dermatitis or superficial inflammation may be excited, presenting many of the characteristics of the eruption under consideration, but it is quite different in its tendency to speedy recovery when once the local cause is fully removed and the surface is adequately protected.

A most striking illustration of the difference may be seen in scabies, where in the large majority of cases the eruption, however severe it may have been made by scratching, will cease with the proper local treatment of the parasitic disease; but in a few cases the local irritation thus set up will not so subside, but will continue and spread, exhibiting pronounced features of true eczema. The distinction should be clearly made between a local dermatitis (from the very many causes) and real eczema; if this were always done the proportion of eczematous cases would be smaller.

"To what extent does it depend on diet?" To a very large extent. By this is not meant that any one or many articles of food may or can produce the tendency to eczema; but it

does mean that faulty nutrition of the tissues, largely due to dietary errors, plays a very considerable part in the production of eczema. Other things being right—that is, the functions being all well performed, etc.—with a perfectly correct or ideal diet and nutrition the skin tends to be perfectly formed, and does not tend to take on a catarrhal tendency under local or even internal irritation. But with an imperfectly nourished skin this readily takes place, especially in those with an inherited or constitutional tendency to the same.

"To what extent is diet to be relied upon in treatment?" Very largely, in conjunction with proper internal and external therapeutics. Not only are articles known to be indigestible or to excite cutaneous irritation to be avoided, but all diet having a tendency to induce depraved nutrition is to be excluded; there is, therefore, to be instituted such a regulation of the quantity and quality of the food and drink taken, its mode of preparation, and time and method of consumption, as shall conduce to the restoration and maintenance of health. In this larger definition of diet all who see much of eczema in young persons (and old as well) must agree that it is an important factor in the proper management of the disease.

"Is eczema ever reflex—particularly in regard to the teeth?" Most assuredly, as far as relates to separate attacks or outbursts of the eruption, as may often be witnessed on each accession of a tooth in those subject to the same. But as to causing the disease, it is impossible that the physiological process of extrusion of the teeth can have any real effect in inducing the skin to take on true eczematous action when previously healthy.

"Outline of treatment." Only the briefest suggestions are possible within the limits of this article. The measures employed must vary very greatly according to the age of the patient, the susceptibility of the skin, the stage, degree, and extent of the eruption, and the physical condition of the patient; no two cases of eczema of any severity or duration can or should be treated exactly alike. Every little patient with any amount of eczema should be studied even more carefully than one with acute disease; for instinct and experience will often enable one to judge quickly in the latter case, whereas an obstinate case of eczema will often test the very best powers and acumen of the physician to discover and reach the element at fault in the case.

While eczema in children, as well as

adults, is often dependent upon faulty metabolism and disordered action of some of the emunctory organs, it must ever be remembered that it is a disease of lowered vitality. While remedies and measures are taken to promote excretion and assist assimilation, the tonic idea should pervade all treatment. On the other hand, too stimulating measures, dietetic or medicinal, may fail of action or even do harm when used too early or pushed too vigorously.

Mild laxatives are of great advantage at the beginning and during treatment; also remedies which promote the action of the kidneys, both as to solid and liquid ingredients.

While arsenic sometimes seems to have a wonderfully controlling action over eczema in young children when pushed to full dosage, in many instances it fails; and practically arsenic does not form a large element in treatment by those who have most experience with the disease.

Local measures must vary so greatly according to the stage and condition of the eruption, and also with the peculiarities of individual skins, that it is impossible to give briefly any indications as to their use. It may be stated, however, that the error most commonly committed is on the side of too strong and irritating applications. It should always be remembered that the eczematous skin is itself in an irritable condition, with Nature seeking to give relief to the irritation by an exudation from the congested blood-vessels and cells; further, that this erethistic condition is apt to be continually aggravated by the efforts of the patient to get relief by scratching. This scratching or rubbing attracts more blood to the part, and by laceration injures the deeper layers of the skin, which should be protected by an external, horny layer, which is more or less wanting.

Protection and soothing is therefore what the excited skin wants, and yet what is often very difficult to secure. The complaints or evidences of the itching will often cause the physician to use stronger and stronger applications, hoping to control it, and they will only too often prove more and more irritant to the delicate and excited cells, and really aggravate the inflammation and itching instead of subduing it. The reason of the well known popularity of the oxide of zinc ointment is because of its bland and non-irritating character, when well prepared, forming a protective coating over the inflamed part; subnitrate of bismuth acts in the same manner, and is rather more astringent.

#### PLEURITIS: ITS DIAGNOSIS AND TREATMENT.

PAGE of New York in the *Medical News* of February 13, 1897, contributes an interesting and practical paper on this subject. After considering the etiology and diagnosis he states that the treatment of acute pleurisy with sero-fibrinous effusion is generally directed first to the pain in the side. How are we to afford relief? Perhaps the simplest way would be to administer an opiate; in fact, if the pain is very severe, this will have to be done. The hypodermic injection of a moderate dose of morphine, to be repeated if necessary at proper intervals for the first day or two, may be all that is necessary, since it is only during the first few days that pain is an urgent symptom. In many cases morphine is not required. Dry cups have been highly recommended, but in my experience they are of little service and cause much annoyance to the patient. In case opium is not required, or even in conjunction with it, the question lies between hot and cold applications. Of these the writer does not hesitate to recommend the hot-water bag in preference to ice; it affords greater and more speedy relief than ice, and to the patient is much more comfortable. Hot applications, with or without opium, therefore appear to be the best remedies for the pain in the side.

The temperature in pleurisy rarely goes so high as to require interference, but should it be thought advisable to reduce it a moderate dose of acetanilid or ammonol—say three grains—can be given at noon and repeated at intervals of three hours until bedtime. This is a much better plan than administering quinine, unless a positive malarial condition is present, for with the exception of controlling temperature in malarial affections quinine is of little or no benefit, and often does harm by increasing head symptoms, such as delirium, insomnia, deafness, and the like.

Remedies to control the pulse can be given in pleurisy with far less danger of fatally depressing the heart than in pneumonia. For that reason veratrum viride, aconite, and similar medicines can be used not infrequently with great advantage, whereas in nearly all cases of croupous pneumonia they are, in the writer's opinion, out of the question.

As a rule, in ordinary favorable cases of acute pleurisy with effusion stimulants are not needed, but the physician would be guided in this as in other diseases by the character of the pulse, the patient's general condition,

and previous habits. In ordinary cases when stimulants are called for, as evidenced by the dry, brown tongue especially, a tablespoonful of whiskey or brandy in a little milk every three hours is sufficient; but among those addicted to intemperance a much larger quantity has to be administered. Digitalis, which is so highly recommended and often urgently needed in pneumonia, is seldom required in pleurisy, and the same may be said of nitroglycerin, carbonate of ammonia, and other so-called heart stimulants, the alcohol alone being quite sufficient.

Even to this day it is a common practise with the profession at large to apply blisters both in pneumonia and pleurisy. The writer disapproves of such practise, however common it may be, in the acute stages of these diseases. In acute pleurisy blisters would not only do no good during the first two weeks, say, but would do positive harm by interfering with the patient's comfort and also by increasing the rise of temperature. Should the case become tedious and the effusion remain stationary after the third week in spite of ordinary treatment, then blisters and other counter-irritations, as by means of the tincture of iodine, compound iodine ointment, and the like, might be tried, though even here aspiration would be better.

To cause the absorption of the effused liquid in the pleural sac in acute cases the best remedy he has tried is sodium salicylate. It may be given early in the disease, and in the same doses as in acute articular rheumatism. In fact, if we regard the pleural cavity as a large joint, there is no reason why it should not be subject to rheumatic inflammation and effusion, as the knee, for example, in acute rheumatic fever, and in some of these cases the sodium salicylate does certainly act speedily and effectually. On the other hand, the writer has observed but little benefit derived from the administration of iodide of potassium or such diuretics as acetate of potash with infusion of digitalis, diuretin, and so on. Such remedies do more harm by interfering with digestion and nutrition than any benefit to be derived from their use. But the sodium salicylate should be given with proper precaution. In some cases it so depresses the heart and causes such vertigo that its further use has to be discontinued at once. Also, if such symptoms do not arise so as to contraindicate its further use, it may just as well be discontinued after a few days or a week if such trial proves its action to be of no benefit.

An all-important question arises in the treatment of pleurisy with effusion: Shall we aspirate, and if so, at what stage of the disease, and at what point shall the needle be inserted?

In order to discuss this question properly let us refer again to three stages of acute pleurisy with effusion: (1) The dry stage, lasting only a few hours; (2) the stage of effusion, lasting usually from five to eight days; and (3) the stage of absorption, the whole duration being two or three weeks.

Of course, it is generally agreed that if the fluid has accumulated rapidly, as sometimes happens, and is excessive in amount, aspiration should be resorted to at once. Not only is life endangered by asphyxia from interfering with respiration, but if the heart be much compressed, as evidenced by its wide displacement and feeble and irregular beats, the patient may die very suddenly from heart failure. Under such conditions aspiration alone can save life, and it should not be delayed.

Generally, about half the fluid is withdrawn. That is usually sufficient to relieve the urgent distress. Moreover, the cough and pain in the chest caused by the expanding lung will now interfere greatly with further withdrawal of fluid, not to mention the danger of rupture of the lung. In a few days the fluid may have returned, and a second or even a third aspiration may become absolutely necessary. After this, in favorable cases, the exudation of fluid ceases, and what is left in the pleural cavity becomes rapidly absorbed, with complete recovery. But unless such urgent symptoms do present themselves—in other words, if the patient be doing well—are we to withdraw the fluid during the acute stage? Certainly not. The reason for it is obvious. There is a great tendency to the formation of adhesions in pleurisy under the best conditions. To draw off this fluid during the active stage of inflammation, as evidenced in part by the pain and temperature, would simply bring the inflamed surfaces together that had heretofore been kept apart by the effusion. Increased irritation with a more severe grade of inflammation would follow, and extending into the subserous connective tissue would convert a superficial into an interstitial exudation and result in a thickened pleura, if not extensive plastic adhesions. Such a termination would be extremely unfortunate, and due to unnecessary if not meddlesome interference. Both lungs would be damaged, the one from im-

perfect expansion due to such thickening of the pleura and extensive adhesions that hill-climbing or the use of the pneumatic cabinet would fail to break them up; the other from vicarious emphysema, in its effort to do compensatory work. It is to avoid these injuries to the pleuræ, with consequent permanent injury to the organs of respiration, that Potain and other eminent authors so earnestly recommend that in ordinarily favorable cases the operation be not resorted to before the second or third week, when all signs of active inflammation have subsided.

It has been recommended that the early withdrawal of the fluid might be practised while injecting sterilized air, thus converting acute pleurisy with effusion into pneumothorax; in other words, to substitute sterilized air for fluid as the medium for keeping the two serous inflamed layers apart. The air would become more rapidly and certainly absorbed, while at the same time remaining long enough to prevent the injury that would otherwise result from the immediate contact of the inflamed surfaces and sudden expansion of the lung. But as yet he has not learned that any practical result for good has been reached by such means. There is no danger whatever, in his opinion, that a sero-fibrinous effusion will be converted into a purulent one by the operation of aspiration if proper precautions, now so well-known to the profession, are observed.

But if drawing off the fluid is not good practise, allowing it to remain too long may be said to be equally bad. In this case the period of active inflammation is over, the stage of organizing has arrived, and if the lung be allowed to remain compressed and quiescent adhesions are almost certain to result.

#### THE TREATMENT OF PUERPERAL ECLAMPSIA.

In the London *Practitioner* for February, 1897, Gow gives a review of current midwifery literature. At the International Congress of Gynecology held in Geneva one of the subjects under discussion was the treatment of puerperal eclampsia. Until the pathology of eclampsia is better understood no rational treatment of the disease is possible, and it is more than probable that causes at work are not always the same. According to the statistics of Dr. N. Charles, of Liège, eclampsia occurs once in every one hundred and fifty-one deliveries, and is about four times as common in primiparæ as it is in

multiparæ. Among every four women who suffer from albuminuria during pregnancy one gets eclampsia. He teaches that it is most desirable to terminate delivery in all cases as speedily as possible when eclamptic convulsions set in, and with this object in view labor should be induced or accelerated as the case may be. In urgent cases the cervix must be dilated by the hand or by hydrostatic bags, and if this is impossible Cæsarean section should be performed.

Charpentier (Paris) on the other hand counsels that we should wait for labor to come on of itself, and that delivery should be allowed to take place spontaneously whenever possible, forced delivery being reserved for very exceptional cases. Venesection and the administration of chloral and chloroform are the remedies he chiefly relies on during the attack, and further suggests that diuresis may be favored by the subcutaneous injection of artificial serum.

Veit (Leyden) draws attention to the fact that many cases of eclampsia get well whatever the treatment may be, and states that there is no direct evidence that forced delivery under deep anesthesia improves the prognosis. He does not rely on any one method of treatment, but considers that the systematic use of large doses of morphine administered subcutaneously seems to give the best results. In addition he advises that the membranes should be ruptured, labor prudently accelerated, and delivery effected as soon as the soft parts are fully dilated.

Mangiagalli on the other hand advocates rapid evacuation of the uterus, and believes this to be the most important point in the treatment. If the case is a grave one the cervix should be forcibly dilated, and when this is impossible on account of an unusual degree of rigidity, Cæsarean section is justifiable, especially if the fetus is living.

Byers (Belfast) pointed out that the most probable hypothesis was that the convulsions were caused by a poison elaborated by the mother, or by the fetus, which accumulated in the blood owing to some failure in the normal processes of elimination. The treatment he advised was the administration of morphine subcutaneously, the woman being kept upon her side, and all liquids by the mouth being withheld. Hot-water or vapor baths, if obtainable, should be used. If labor has not begun the convulsions should be treated with morphine, but the uterus should not be excited, and no attempt should be made to bring on labor. In the first stage of

labor, when convulsions supervene, hydrostatic bags may be employed if the cervix is soft and dilatable; but if it is rigid no local measures should be used. In the second stage of labor he advises delivery with forceps after the patient has been anesthetized.

It will be seen that there is still no general agreement as to the best method of dealing with eclamptic convulsions, and Veit's remark that many cases get well whatever the treatment may be shows how difficult it is to judge dispassionately the merits and the demerits of the various plans adopted, and to determine to what extent they really play a part in bringing about the recovery of the patient. The most difficult question to decide is whether the first stage of labor should be hurried and delivery rapidly effected as advised by Charles, or whether it should be allowed to take its course as recommended by Charpentier and Byers. It is quite clear that unless the advocates of forced delivery can prove that their results are much better than those in which labor has been allowed to advance naturally, their methods will not find favor, as the risk of severe local injury from forced delivery is a real one. Further evidence is wanted on this point, and it is only by reviewing a large number of cases that the matter can be finally determined, because the severity and danger of death in different cases of eclampsia varies enormously. Some cases even where convulsions occur at short intervals get quite well, while others, after only a few or it may be a single convulsive attack, rapidly die, although the treatment adopted may be precisely the same in both instances. Until more certain knowledge has been obtained as to the precise pathology of these cases we cannot hope to advance very far towards a rational treatment.

#### ON THE PATHOLOGY AND TREATMENT OF CHILBLAINS.

In the London *Lancet* of January 30, 1897, WRIGHT, whose researches on the coagulability of the blood are so well known, tells us that he has investigated the condition of blood-coagulability in ten cases of chilblains. Two of these were cases of aggravated chilblains occurring in adult males; the blood-coagulation time of these patients was respectively nine minutes and nine and a quarter minutes. Four were cases of aggravated chilblains occurring in adult females; the blood-coagulation time of these cases was respectively thirteen minutes,

eleven minutes, eight and three-quarters minutes, and seven and a half minutes. Lastly, four of these ten cases were mild cases of chilblains occurring in schoolboys; the coagulation time of these cases was respectively eleven minutes, nine and a quarter minutes, seven and three-quarters minutes, and four and a half minutes. It is obvious, therefore, when we consider that the normal blood-coagulation time varies between three and four minutes, that all these cases of chilblains, with the exception of the last, were associated with a very notable defect of blood-coagulability. This fact stands in relation with certain other facts which obtrude themselves more directly upon the clinician's attention. These facts are: (a) the superior liability of children to chilblains; (b) the fact that chilblains are prone to occur in persons who give a history either of nose-bleeding or of urticaria; (c) the occurrence of chilblains in persons who are characterized by a lymphatic habit of body; (d) the not infrequent occurrence of chilblains in persons who are the subjects of malarial cachexia; and (e) the not infrequent occurrence of chilblains in hemophilic families. We will briefly consider each of these predisposing causes.

The notorious liability of children to chilblains is no doubt in part referable to the fact that the influence of cold makes itself felt more upon the relatively small extremities of the child than upon the relatively large extremities of the adult. Another probable factor in the etiology is the fact that the lime salts upon which the coagulability of the blood depends are in the growing child being continually removed from the blood in order that they may be deposited in the bones.

There is an obvious relation between the predisposition to epistaxis, the predisposition to urticaria, and the predisposition to chilblains, inasmuch as these predispositions have been shown to depend upon a defect of blood-coagulability. In two cases which have recently come under the writer's observation he has seen urticaria alternate with chilblains. Both these forms of serous hemorrhage were apparently brought on in susceptible patients by exposure to cold.

We shall understand the relation between the lymphatic constitution and a predisposition to chilblains if we consider, first, that the essence of the lymphatic constitution is to be found in a water-logging of the tissues which is dependent upon an excessive transudation

of lymph; secondly, that it will require only a very slight increase of transudation to convert such a water-logged condition of the tissues into perfectly definite hematomata such as we see in chilblains; and thirdly, that in all probability both chilblains and the water-logged condition of the tissues which we meet with in the lymphatic patient are ultimately referable to a defect of blood-coagulability.

The subjects of malarial cachexia are not infrequently also the subjects of chilblains. It is even possible, as the writer is assured by a medical officer who has experience of the truth of this fact in his own person, to suffer from chilblains on the West Coast of Africa after a severe attack of malarial fever. This liability of the malarious subject to chilblains is in absolute conformity with the fact that the blood of patients who are subjects of malarial cachexia is characterized by a defect of blood-coagulability which is dependent upon a great paucity of white blood-corpuscles, especially of polynuclear white blood-corpuscles.

The writer has pointed out in previous papers that the chilblains are of frequent occurrence in hemophilic families. This stands in connection with the fact that hemophilic blood is, as previously shown, characterized by an extreme defect of blood-coagulability which is dependent upon an extreme and hereditary paucity of white blood-corpuscles, and in particular upon a paucity of polynuclear white blood-corpuscles.

In view of the etiological facts thus disclosed the obvious indication for treatment is to take steps to augment the patient's blood-coagulability. In conformity with these indications the writer places his patients upon a regimen of calcium chloride (after duly cautioning them against lowering their blood-coagulability by the ingestion of sour fruits, alcohol, or excessive quantities of fluid). Of the eight cases which he details, six responded to this treatment with a marked increase of blood-coagulability. These were all cured as soon as a sufficient augmentation of coagulability had been achieved. In one of the remaining cases no good whatever resulted from the treatment; in this case, owing perhaps to the maladjustment of the dose of calcium chloride, no augmentation of coagulability was obtained. Finally, in one case only transient and uncertain amelioration was obtained from the treatment; and here, again, only a very transient augmentation of coagulability was obtained.

#### *THE TREATMENT OF DIPHTHERIA BY ANTITOXIN AT THE SOUTH DEPARTMENT OF THE BOSTON CITY HOSPITAL.*

In the *Journal of the Boston Society of Medical Sciences* for January, 1897, McCOLLOM makes the following report:

The South Department, devoted to the treatment of the three principal acute infectious diseases—namely, scarlet fever, diphtheria, and measles—was opened August 31, 1895. Previous to this time these diseases had been treated in the Boston City Hospital proper. It was found that the proximity of these wards to the hospital was a constant menace to the other patients, and also to the employees.

It has been claimed that hospitals for infectious diseases situated in a crowded locality become foci for the spread of disease. From the 1st of September, 1895, to the 1st of September, 1896, there were reported to the Board of Health 3989 cases of diphtheria. The hospital was taken as a center, and an analysis of the cases shows that within an eighth of a mile radius 11 cases occurred; one-quarter of a mile, 82 cases; half a mile, 238; three-quarters of a mile, 292; and a mile, 423; making a total of 1046. The remaining 2943 existed in other portions of the city—two, three, and in some instances five, miles away. The area of infection of scarlet fever is greater than that of diphtheria. The total number of cases of scarlet fever reported to the Board of Health for the year ending September, 1896, was 1043. Within an eighth of a mile from the hospital there were no cases; one-quarter of a mile, 68 cases; half a mile, 71 cases; three-quarters of a mile, 75 cases; within a mile, 72 cases; making a total of 286. The remaining 757 occurred more than a mile from the hospital.

The study and treatment of diphtheria has assumed a new phase since the introduction of antitoxin. The course of the disease has become shortened since it has been used. The most malignant types have been treated successfully. The type of the disease has not become milder in late years.

In Boston, from 1878 to 1894, the average death-rate was 30.7 per cent. In the Boston City Hospital, from 1891 to 1894, when antitoxin was not used, the percentage of mortality was 46. In the South Department for a period of thirteen months when antitoxin was used the percentage of mortality was 13.4. If the seventy patients who were admitted in a moribund condition were elimi-



nated it would bring the death rate down to 10.3 per cent.

In laryngeal cases antitoxin is of very great benefit.

At the Boston City Hospital, for the year ending January 31, 1895, there were 89 intubations and 74 deaths, giving a percentage of recoveries of 17. These cases did not have antitoxin. In the South Department for thirteen months ending October, 1896, there were 200 intubations, where antitoxin was administered, with a percentage of recoveries of 45.5.

An analysis of the 1972 cases treated shows that 1074 had membrane on each tonsil; 1030 of these were discharged well; 44 died. Of the remaining 898 cases 226 had membrane on one tonsil, three of whom died. In 202 cases the membrane covered each tonsil, the uvula, and the palate; 66 of these cases died. Membrane was found on each tonsil and the uvula in 195 cases; 34 of these patients died. Membrane was found on one tonsil, uvula, and palate in five instances; none of these patients died. There were 200 intubations with 107 deaths. There were 38 non-operative laryngeal cases in which there was membrane visible, two of whom died; 22 cases of non-operative laryngeal cases in which no membrane was discovered, no death occurring in this class of cases. There were ten cases of tracheotomy; of these, three died from extension of the membrane, four from shock, and the remaining three from bronchopneumonia. To sum up the 1972 cases, 34 per cent. had albuminuria; 12.3 per cent. had urticaria; and the percentage of cases in which it was necessary to give two doses of antitoxin was 8.9.

Of the 1702 non-laryngeal cases the culture was negative in 100 instances, or 5.8 per cent. In the laryngeal cases it is the exception that a positive culture is obtained so far as the presence of the bacilli of diphtheria is concerned, and yet in this class of cases 77 were positive of the 270.

It has been stated that albuminuria is caused by the use of antitoxin. Of the 1972 patients treated with antitoxin thirty-four per cent. had albuminuria, which proves that antitoxin does not increase the frequency of albuminuria, as this is not as large a percentage as occurs in cases not treated by antitoxin. In 173 cases the urine was examined before and after the administration of antitoxin. Of these 173 cases it was found that in ninety-nine instances albumen was absent both before and after the administration of antitoxin,

which was without doubt due to the fact that the healing serum was administered before the diphtheritic membrane had increased sufficiently to generate toxin enough to cause albuminuria. In thirty-three cases the albumen was about the same; in twenty-five the albumen was diminished, which seems a sufficient argument against the claim that antitoxin causes albuminuria. In sixteen cases the albumen was increased, but not to a sufficient extent to cause any special anxiety. As these were severe cases the conclusion that albuminuria was caused by the toxin of diphtheria and not by the healing serum is justifiable.

Eruptions of the skin of different varieties have been observed in 244 instances. These eruptions can be classified as urticaria, erythema, a papular eruption, an ecchymotic eruption which must be distinguished from the spots of ecchymosis occurring as an early symptom in severe attacks of diphtheria, a punctiform eruption resembling scarlet fever, and an eruption resembling that of measles.

The percentage of cases in which post-diphtheritic paralysis occurred is 5.8, which is not as large as occurs in cases not treated by antitoxin.

Experience shows that the best place for the injection is the upper part of the thorax, near the posterior axillary line.

From the study of these 1972 cases of diphtheria treated at the South Department the following conclusions are justifiable:

1. That antitoxin is a remedial agent of very great value in the treatment of diphtheria.
2. That the healing serum does not cause albuminuria.
3. That its use does not predispose to paralysis.
4. That in the laryngeal cases of diphtheria the benefit derived from its use is as great if not greater than in the non-laryngeal cases.
5. That the statement that has been made that antitoxin statistics, because based on mild attacks of the disease, are unreliable, is incorrect.

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#### SOME POINTS IN THE TREATMENT OF INFANTILE DIARRHEA.

In the *Revue de Thérapeutique Médico-Chirurgicale* of December 15, 1896, LESAGE contributes an article upon this subject. He first points out that one of the most important things is the regulation of the diet. F

believes in an absolute sterilized milk diet, and the use of some mild alkaline water such as that of Vals or Vichy, to which may be added some white of egg to form albumin water.

He also insists that should the purgation be so active as to deplete the patient to a dangerous extent we should employ hypodermoclysis, or the subcutaneous injection of artificial serum or even of real serum. This latter recommendation is of course in line with that made by Cantani, who it will be remembered treated cases in one of the recent epidemics of cholera in Europe in this manner with extraordinarily good results, using as much as four to six quarts of saline solution for the adult. It is, however, to Luthon of Reims that credit for the introduction of hypodermoclysis in the treatment of cholera infantum is to be given, for in 1884 he reported the use of small doses of saline for this purpose. In 1888 Weiss recorded the treatment by injection of from one to two ounces in cases of cholera infantum with successful results; and Sahli, Wild, and Demieville have reported cases of very extraordinary recovery after as much as five ounces had been injected, as have also Houtinel, Thiecelin, and Marois. Other authorities might be quoted. The following solutions may be employed:

- ♢ Chloride of sodium, 100 grains;  
Distilled sterilized water, 1 quart.

Or Hayem's solution:

- ♢ Chloride of sodium, 75 grains;  
Sulphate of sodium, 150 grains;  
Distilled sterilized water, 1 quart.

This liquid is to be allowed to flow very slowly into the subcutaneous tissues of the belly-wall or back, divided up amongst three to six injections a day, generally given in the dose of thirty cubic centimeters each time.

In cases which are not so severe and where the purging is not so excessive, but where the child apparently is poisoned by toxins which have been absorbed, smaller doses amounting to five cubic centimeters are useful for the purpose of flushing the kidneys and acting as a stimulant. In other instances it may be well to use the formula of Cheron, as follows:

- ♢ Carbolic acid,  
Chloride of sodium,  
Phosphate of sodium, of each 15 grains;  
Distilled water, 3¼ ounces.

Very small doses of this solution may be used on account of the poisonous carbolic acid which it contains. In some cases if the patient is tuberculous these injections will

not only arrest a fall in temperature, but actually produce a fever, and for this reason the injection should not be used if there is any evidence of tubercular adenitis, as it has been found that this treatment may change a latent tuberculosis into an active one. The injection of blood serum possesses so many disadvantages that it hardly seems to us advisable, although it has been employed in a very considerable number of patients.

#### THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTIONS OF BENZOATE OF MERCURY.

According to the *Revue de Thérapeutique Médico-Chirurgicale* of December 6, 1896, GALLOIS recently communicated to the Société de Thérapeutique his method of treating syphilis by intramuscular injections of benzoate of mercury. He condemns the employment of the insoluble preparations of mercury and advocates the use of the soluble salts, and endorses the formula of the Russian physician Stoukownenkoff, as follows:

- ♢ Benzoate of mercury, 4 grains;  
Chloride of sodium, 1 grain;  
Hydrochlorate of cocaine, 1 grain;  
Sterile distilled water, 1 ounce.

Thirty minims of this are to be injected deeply into the loose muscles of the back every day or two. The only pain following this slight operation is a sensation as if a bruise were present, which develops about two hours after the injection. The advantage of using the benzoate of mercury is that it is less painful than calomel and is rapidly absorbed.

#### THE USE OF SULPHATE OF SODIUM AS A HEMOSTATIC.

In the *Revue Médicale de la Suisse Romande* of January 20, 1897, REVERDIN contributes an interesting article upon this subject, experimental and otherwise, and concludes that small doses of sulphate of sodium (two grains every hour) are of great value in certain cases of capillary hemorrhage for the purpose of arresting the flow of blood. He has also found this method of treatment of value for the control of graver hemorrhages. His experiments upon animals seem to show, however, that the remedy is only of value if given by the stomach or injected into the veins. Under these circumstances it distinctly increases the coagulability of the blood. On the other hand, it is a noteworthy fact that its administration subcutaneously does not produce the same result.

*ANTISTREPTOCOCCIC SERUM IN SCARLET FEVER.*

RAPPOPORTE has employed antistreptococcic serum containing 0.5 of one-per-cent. carbolic acid solution in the treatment of scarlet fever in sixteen cases; four of these were not grave, and he thinks that the use of the serum prevented the aggravation of the infection. In two cases with symptoms of great infection the serum did not exercise much action; these two patients died. In the other twelve cases to whom the serum was given for the purpose of overcoming the symptoms no less than ten succumbed. He also found that the serum did not exercise any material influence over the ordinary course of the temperature, and concludes that its use is not satisfactory. It seems to be necessary that there should be marked streptococcic infection in addition to the infection of scarlet fever, for this treatment to be useful.—*Revue de Thérapeutique Médico-Chirurgicale*, Dec. 6, 1896.

*KELOID SCAR FOLLOWING THE APPLICATION OF IODINE.*

In *L'Abeille Médicale* of February 13, 1897, there is a case reported to the Society of Dermatology by THIBIERGE in which a young girl of fifteen had applied to the skin of the anterior portion of the thorax a considerable quantity of tincture of iodine, which was repeated once, the idea being to relieve an attack of bronchitis. Seven months afterwards a scar was present with distinct keloid manifestations.

*THE INDICATIONS FOR VENESECTION.*

ALBU has studied the influence of bleeding upon a series of pathological conditions and reviews the indications and contraindications for its employment. By bleeding we directly diminish the blood-pressure and the density of the blood, and modify materially its morphological elements. We thereby produce modifications in various parts of the system, and determine reactions in the presence of morbid processes. The chief indications for the employment of bleeding are two conditions: extreme arterial pressure with congestion of certain organs; and the accumulation in the blood of metabolic products or of foreign substances.

The first indication is met with in cases of apoplexy in vigorous subjects, with signs of plethora. It may also be met with in cases of epilepsy.

The second class of patients is met with in

those suffering with uremia. Bleeding is contraindicated in chronic interstitial nephritis with loss of compensation in the presence of feeble cardiac action and cachexia. It is an operation, however, which is to be recommended in the poisoning by the oxide of carbon and by illuminating gas and chlorate of potassium. In pneumonia its influence is not for good, unless the arterial pressure is very high or unless there is a tendency to pulmonary edema owing to feebleness resulting from myocarditis.

In young subjects bleeding is contraindicated should there be cardiac asthenia. In cardiac bronchitis, particularly that due to grippe, Albu thinks that free bleeding brings about excellent results. It also does good in cases of bronchitis with bronchiectasis. He has even seen it of advantage in pneumothorax and in disorders of compensation, and consecutive upon mitral stenosis. He believes that in myocarditis it must be used with prudence, and that it is contraindicated in chlorosis, although sometimes bleeding, by stimulating the blood-glands, may prove useful.—*Journal des Praticiens*, February, 1897.

*POISONING BY TRIONAL.*

A case is reported in *L'Abeille Médicale* of February 13, 1897, in which a man suffering from morphinomania and who was accustomed to employ morphine daily received habitually twenty grains of trional every night during a period of two months, or to speak more exactly, twenty-one drachms in twenty-six days. After one month the patient found it difficult to rise and was in a condition of continuous hebetude. He could with difficulty support himself, and the movements of his upper and lower extremities were exceedingly ataxic. There was tremor of the tongue, the feet, the hands, and the muscles of the face. The walk was slow and labored. In attempting to speak the syllables were transposed, or on attempting to write they were so disordered as to make the spelling very incorrect. There was profound psychic depression and general intellectual feebleness, with involuntary passage of urine.

*PANCREATIN IN THE DIARRHEA OF EXOPHTHALMIC GOITRE.*

In the *Journal des Praticiens* for February 6, 1897, LIEGEOIS reports his successful employment of full doses of pancreatin in the treatment of persons suffering from exophthalmic goitre.

*THE PICRIC ACID AND ARISTOL TREATMENT OF BURNS.*

Dr. Cookman writes upon the recent methods of treating burns in the *Hahnemannian Monthly* for March, 1897. As he states there is perhaps no subject in the realm of surgery that has been so extensively written upon and discussed as burns and their treatment. Medical literature since time immemorial has devoted countless pages to this topic, and each current magazine seems to bring forward some new drug or plan of treatment that will produce rapid and painless healing of this injury. Yet burns will be burns, and still continue to pursue the uneven tenor of their way, producing ugly contracting scars and taxing to the utmost the skill and patience of the painstaking surgeon.

The two methods of treatment advocated in this brief paper, although comparatively new in this country, have been tried and their efficiency thoroughly proven in England and on the Continent. Powers of London and Thiery of Paris report a long series of cases successfully treated with picric acid; while Walton of Ghent and Von Kliegel of Vienna publish an equally extensive list of perfect recoveries under the aristol treatment.

Picric acid and aristol belong to that group of remedies which have recently been prepared by synthetical methods and introduced into therapeutics. The former, as is well known, is a product resulting from the action of nitric upon carbolic acid. It consists of fine yellow scales, soluble in water or alcohol, to both of which it gives a brilliant yellow color. Its use in medicine has been a limited one, while in commerce and the manufactures it has been extensively employed as a dye. As a local application for burns it is best used in the strength of one and a half drachms dissolved in three ounces of alcohol, and then diluted with two pints of distilled water. This makes the so-called saturated solution of picric acid.

The greatest advantages of picric acid in the treatment of burns are:

1. The severe pain which is so characteristic of these injuries is considerably lessened, this being doubtless due to the carbolic acid of which it is largely made up, and which is a well-known local anesthetic.

2. It limits the tendency to suppuration on account of its strong antiseptic properties and the power it possesses of coagulating albuminous discharges. When we remember that the antiseptic carbolic and the coagula-

ting nitric produce picric acid, these properties are readily understood.

3. Healing takes place rapidly under a scab, and the resulting scar is smooth and shows but little tendency to contract.

Picric acid is most indicated in superficial burns and scalds, with vesication of the skin, and should be applied as follows: After careful removal of all clothing from the burnt part, the wound should be cleansed as thoroughly as possible with the solution of the acid. If a syringe is used for this purpose the surgeon can avoid staining his hands. All blisters should be pricked and the serum allowed to escape, care being taken not to destroy the overlying epithelium. Sterilized gauze is then spread over the burned area and soaked with the lotion. A layer of absorbent cotton is put over the gauze and the dressing held in position by a bandage. This dressing may be left in place three or four days, and then gently removed by thoroughly moistening it with the picric solution, for it will be found to adhere closely to the skin. Subsequent dressings are similarly applied, and after three or four, according to the degree of burn, healing will be complete.

A word of caution is necessary. Picric acid is poison, fifteen grains being considered a lethal dose. We must therefore watch over patients for toxic symptoms. These are a general yellow color of the skin and conjunctiva, orange-colored urine, sexual excitement, mental lassitude, and gastric disturbances.

Aristol is a combination of iodine, iodide of potash, and thymol. It is a light red, extremely fine powder, insoluble in water and glycerin, slightly soluble in alcohol, and readily dissolved in ether, collodion, and the fixed oils. As a cicatrizant it probably has not the toxic and irritating character of the latter, is practically odorless, and probably has some anesthetic properties. When applied to a wound it produces at first a slight burning, followed by a diminution of the painful sensations. Granulations spring up, healthy, vigorous, and vascular. Cicatrization takes place rapidly from the edges of the wound, and the scar seems to be less abundant in fibrous tissue, thus decreasing the liability to contraction.

Aristol may be used in all varieties of burns, from a simple erythema of the skin to a complete charring and destruction of the tissues. In the superficial form it is best used as a powder, while in the deeper burns the following ointment is to be preferred: Aristol,

one part; olive oil, two parts; dissolve and add vaselin, eight parts.

Strict asepsis of the wound, however, is the first essential to success. After pricking all the blebs and permitting the serum to exude, the burn should be well irrigated with a weak solution of boracic or carbolic acid, and its surroundings scrubbed with soap and water. Then with sterilized absorbent cotton the surface should be gently dried, and the aristol applied, either as a powder or an ointment. If the latter is used, the wounded edges are first dusted with the powder, and then sterilized gauze on which the ointment has been thickly spread is applied. The dressing is completed with another layer of gauze, absorbent cotton, and a bandage. After three days this should be removed, the wound and adjacent parts aseptically as before, and the same dressing reapplied. By careful treatment in this manner very extensive burns will rapidly cicatrize.

Although Cookman has described these two methods as separate and distinct, they may be combined.

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#### AN OINTMENT FOR CHILBLAINS.

- ℞ Camphor, 20 grains;
- Balsam of Peru, 7 grains;
- Oil of almonds, 2 drachms;
- Lanolin, 6 drachms;
- Rose water, 6 drachms.

—*Journal des Praticiens*, Feb. 13, 1897.

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#### AN OINTMENT FOR ECZEMA.

- ℞ Oxide of zinc, 1 drachm;
- Talc, 1 drachm;
- Olive oil,  $\frac{1}{4}$  ounce;
- Lime water,  $\frac{1}{2}$  ounce;
- Lanolin,  $2\frac{1}{4}$  drachms;
- Tincture of benzoin, 10 minims.

—*Journal des Praticiens*, Feb. 13, 1897.

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#### THE TREATMENT OF ECZEMA.

In *La Médecine Moderne* for February 17, 1897, BESNIER writes a long paper upon this subject in which he points out that it is indispensable in these cases to prescribe a particular diet and a regular method of life, if encouraging results are to be obtained in the treatment of severe cases. Care should also be taken that all internal and external causes for tracheal irritation are removed as far as possible, and the urine should always be carefully examined to see that there is no renal cause for the difficulty, as evidenced by albuminuria, phosphaturia, oxyluria, glycosuria, or polyuria, occurring in the course of such

diathetic conditions as lithemia, gout, and diabetes. In regard to the methods of life Besnier points out that the patient should be as much as possible in the open air, must eat regularly of easily digested foods, the proteid constituents of which should be present in comparatively small amounts, and that fresh vegetables are useful, such as the various salads, cresses, and similar substances. Should the eczema be present in the new-born great care should be paid to the regularity of nursing and the clothes, particularly the diapers; and as healthy surroundings as possible should be provided.

Purgatives have been much abused by the physicians of earlier times in the treatment of eczema because they have been given in excessive quantities, but their moderate use should constipation be present is an absolute necessity. At first calomel may be given in small doses, or some of the neutral salines or castor oil or the preparations of senna. As diuretics it is well to employ some of the alkaline mineral waters, and to use to a great extent a milk diet. Belladonna is sometimes useful in cases of eczema in which there is a profuse sero-fibrinous exudate. Under these circumstances two to ten drops of tincture of belladonna may be taken quite frequently, or in its stead small doses of atropine may be given. If there is a contraindication to these drugs we may employ such remedies as tannin, agaracin, and phosphate of sodium. In persons who have a distinctly malarial history quinine is to be employed both for its specific and general tonic effect, and antipyrin, colchicum, and digitalis may also be used, particularly if there is a gouty tendency or feebleness of the circulation. Strychnine is useful if there is marked circulatory feebleness. In the eczema of the young, which is often dependent upon anemia in lymphatic persons, the administration of iron is often exceedingly advisable; in other cases it is better to give cod-liver oil or the iodide of iron; or in some cases if there is a tendency to arterio-sclerosis we may administer iodide of potassium with good results. If there is hereditary syphilis as an underlying cause of infantile eczema the iodide of potassium in moderate doses may be useful.

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#### TREATMENT OF VOMITING BY MENTHOL.

The *Journal des Praticiens* for January 9, 1897, recommends the following treatment in incoercible vomiting:

- ℞ Menthol, 2 grains;  
Hydrochlorate of cocaine, 4 grains;  
Alcohol, 2 ounces;  
Syrup, 1 ounce.

A small teaspoonful every half hour until several doses are taken.

The following may also be used in case of the vomiting of tuberculosis:

- ℞ Menthol, 4 grains;  
Syrup, 5 ounces.

Shake well before using and give two to three teaspoonfuls at short intervals after each meal.

This treatment is an excellent one to follow the use of chloroform-water or ice.

According to Ferrand in some cases of spasmodic vomiting it is useful to apply the following solution to the pharyngeal wall by means of a cotton compress:

- ℞ Bromide of potassium, 75 grains;  
Glycerin, 2 ounces.

Such an application should be made after each meal to diminish the sensibility of the pharynx.

#### THE TREATMENT OF CANCER OF THE STOMACH,

In the *Journal des Praticiens* for January 9, 1897, is an article quoting ROBIN in regard to this subject. One of the most important points in the treatment of this disease in his opinion is the regulation of the diet and a diminution or absolute denial of albuminous food, with measures devoted to the prevention of fermentation of vegetable substances. The patient should also drink only in small quantities, and in those cases where there is hematemesis associated with a cancer, or obstinate vomiting, an absolute milk diet is necessary. The treatment from a medicinal point of view may be divided into the anti-cancerous and symptomatic.

The first can be met by three medications: first, condurango prepared in the following manner:

- ℞ Condurango bark,  $\frac{1}{2}$  ounce;  
Water, 12 ounces.

Macerate for twelve hours and then reduce to six ounces by boiling. A dessertspoonful of this may be given three or four times a day.

The second remedy of value is the chlorate of sodium, which is, however, distinctly contraindicated if there is albuminuria.

The following prescription may be used:

- ℞ Chlorate of sodium, 2 drachms;  
Distilled water, 3 ounces.

A small teaspoonful in the morning.

Third, aristol in pills containing one to two grains, and given three or four a day.

The symptomatic medication is as follows:

For improving the appetite small doses of strychnine and some good wine, and ten minutes before the meal the following in a cachet:

- ℞ Chloride of ammonium, 3 grains;  
Bicarbonate of sodium, 5 grains;  
Dover's powder, 2 grains.

With the object of favoring digestion, hydrochloric acid may be used to compensate for the absence of hydrochloric acid found in this disease. The following cachet may also be given:

- ℞ Pepsin, 8 grains;  
Extract of malt, 2 grains;  
Pancreatin, 2 grains.

For the purpose of diminishing fermentation sublimed sulphur in the dose of three grains, or iodide of sulphur in two-per-cent. strength given in the dose of five to ten grains in cachet after each meal. For the mitigating of vomiting we may have to use opiates, chloroform water, or cocaine, given five minutes after the repast. In other instances the following may be used:

- ℞ Picrotoxin, 1 grain;  
Hydrochlorate of morphine, 1 grain;  
Sulphate of atropine, 1-5 grain;  
Cherry laurel water, 2½ drachms.

Five to eight drops at a dose.

To combat hemorrhage ergotin is a most useful drug. For small hemorrhages the following may be given:

- ℞ Tannic acid, 10 grains;  
Powdered opium, 3 grains (this is a very large dose.—ED.);  
Sugar, 15 grains.

Make into six cachets, all of which may be taken in hourly doses.

For the relief of pain an ointment may be applied to the abdominal wall composed of extract of belladonna, extract of opium, and extract of hyoscyamus; and a plaster made with diachylon plaster, with one part each of these drugs to ten parts of the diachylon and two parts of the acetate of ammonium.

Internally the following may be given:

- ℞ Bromide of potassium, 1½ drachms;  
Hydrochlorate of morphine, 1 grain;  
Cherry laurel water, 2¼ drachms;  
Ether, 2 drachms;  
Syrup, 6 drachms;  
Distilled water, 4 ounces.

Dessertspoonful to teaspoonful of this may be given at a dose.

To overcome the pyrosis the following may be used:

- ℞ Calcined magnesia, 10 grains;  
Powdered opium,  $\frac{1}{4}$  grain;  
Subnitrate of bismuth, 4 grains;  
Bicarbonate of sodium, 10 grains.

In addition to these methods of treatment we must overcome the tendency to diarrhea or constipation as these conditions arise, and prescribe as healthy a life as it is possible for the patient to follow.

#### POWDER FOR CORYZA.

- ℞ Subnitrate of bismuth, 1 drachm;  
Powdered camphor, 6 grains;  
Finely powdered boric acid, 3 grains;  
Hydrochlorate of morphine,  $\frac{1}{4}$  grain;  
Hydrochlorate of cocaine,  $\frac{1}{4}$  grain;  
Powdered benzoïn, 15 grains.

This to be snuffed up the nose.

Or the following prescription may be used internally:

- ℞ Extract of hyoscyamus, 10 grains;  
Iodide of potassium, 50 grains;  
Bicarbonate of potassium, 2 drachms;  
Extract of liquorice, 1 drachm;  
Anise water, 3 $\frac{1}{4}$  ounces.

A dessertspoonful every four hours.

— *Journal des Praticiens*, Feb. 13, 1897.

#### THE THERAPEUTIC EMPLOYMENT OF DIGITOXIN CRYSTALS (MERCK).

There have been many attempts to produce the active principle of the *Folia Digitalis*, but no alkaloid has been produced which combined the therapeutically active principle of the drug in a form which was devoid of its disagreeable after-effects and yet was capable of being administered in accurate doses. V. STARCK (*Munch. Med. Woch.*, Jan. 26, 1897) reports a series of fourteen cases in which he has employed the drug within the last six months, achieving a success equal to that reported by Aubel, Masius, Wentzel, and Unverricht.

He employed the drug in the form of pastels containing about  $\frac{1}{16}$  of a grain as supplied by the manufacturers. The fourteen cases comprised ten cases of valvular failure, two of myocarditis, one of fatty heart, and one of arterio-sclerosis with passive congestion of the kidney. The tablets were well borne in all cases, and there were no symptoms of irritation, at least none sufficiently marked to make any other mode of administration necessary.

In the case of fatty degeneration the digitoxin had no effect. In one of the cases of myocarditis the effect was evanescent, while in a second after repeated attempts it produced good results where all other means had failed. In cases of valvular insufficiency

the action began four or five hours after administration. In the case of arterio-sclerosis with passive congestion of the kidneys the result was better, especially as regards the diuresis, than with any other infusion of digitalis. In one case of mitral stenosis, after eight doses had been ingested in three days, marked symptoms of digitalis intoxication were shown, the pulse falling to forty-six beats per minute. By the use of camphor injections the patient soon rallied, recovering completely in four days, was enabled to leave his bed, and remained well for three months afterwards.

The average dose was two tablets of  $\frac{1}{16}$  grain daily, the ingestion of ten doses generally sufficing; in only one case were twenty doses taken in succession.

Toxic effects followed after the eighth dose in one case.

#### IS THE INJECTION OF AIR IN HYPODERMIC MEDICATION A SOURCE OF DANGER?

In the *Journal of the American Medical Association* for February 27, 1897, McCCLINTOCK writes on this interesting theme. He says that in concluding a paper on "The Cause of Sudden Death After Antitoxin," Seibert and Schwyzer (American Pediatric Society, May 24, 1896) say: "We here express our firm opinion that the sudden deaths reported after antitoxin injections were caused by injected air and not by antidiphtheritic serum." He believes that this conclusion is without any justification whatever. It has been shown over and over again that relatively large quantities of air could be injected directly into the circulation in the lower animals without serious consequences. Senn, Hare, Adamkiewicz, and others have reported experiments in this line, with the conclusion that the danger from air-injection is small indeed.

Nevertheless it is believed by most practitioners that the accidental injection of even a small bubble of air may be followed by very severe consequences. Many of the older books teach this. The experiments and conclusions of Drs. Seibert and Schwyzer have been widely quoted and doubtless will add to the dread that many physicians have of hypodermic medication. As said before, he believes that their conclusions are wholly wrong.

The following experiments and the results agree substantially with those of Senn and

Hare. In the production of antidiphtheritic serum it occasionally happens that a horse is paralyzed from the injection of the diphtheria toxin. In such a case it is customary to kill the animal with chloroform. Recently McClintock had two horses so far paralyzed that they were unable to get on their feet. They were ordered chloroformed, but his assistants having read of the conclusions of Drs. Seibert and Schwyzer asked permission to try the effects of air injection. Horse No. 1, 20 Cc. air injected into the jugular, no effect; after five minutes 20 Cc., no effect; after five minutes 40 Cc., no effect; after five minutes 80 Cc., no effect; after five minutes 160 Cc., labored breathing. Horse No. 2, 320 Cc., into jugular; after one minute quickened respiration, spasmodic contractions of muscles; after four minutes, hiccoughs lasting ten minutes; fifteen minutes, uneasy but respiration slower, an occasional hiccough; two hours later no apparent effect. Several hours later this horse was given 600 Cc. air in the jugular; after one minute, struggling, spasmodic respiration. It acted as if choking, profuse sweating, temperature fell 0.4 degree; after ten minutes, symptoms all gone. Fifteen minutes later 1200 Cc. air injected; quiet, almost stops breathing; breathing stops ten seconds, then continues normal after a few minutes; after waiting twenty-five minutes and no symptoms appearing, the animal was chloroformed.

Dog, weighing about twenty pounds. The jugular was laid bare, and with a 20 Cc. syringe, sixteen syringefuls (320 Cc.) were one after the other injected. One minute after the injections began, quickened and labored breathing set in; in fact the symptoms were practically the same as in the horse, viz., dyspnea. A few minutes after the injections were stopped the animal recovered and normal breathing was reestablished. After an hour the injections were repeated with practically the same results.

Rooster, a small bubble of air injected; no apparent effect; then 1 Cc., the bird became somewhat dyspneic, acted just as a chicken that has run some distance, gasped for air, soon recovered entirely.

Rabbit, injected with 20 Cc. air, decided action at once; quickened respiration, spasmodic contraction of muscles, etc. After two minutes respiration became less frequent and gradually stopped; three and three-fourths minutes, dead.

Guinea-pig, injected with small bubble of air, no effect; after three minutes 1 Cc.,

quickened respiration, etc., but animal recovered entirely.

These experiments were repeated on different animals with similar results.

In observing these animals one is struck by the similarity of the phenomena to those of dyspnea, and indeed they are dyspneic. The air entering the heart and remaining there as an air embolus, as some would say, stops the circulation; or it passes into the heart and forms air emboli in the branches of the pulmonary portion of lung supplied by that particular vessel, and the animal becomes dyspneic. It is easy to see that if enough air is injected the circulation in the lungs may be so nearly stopped as to cause death, but one or several bubbles of air would merely temporarily close a few of the branches of the pulmonary artery. This air would be absorbed by the blood in a very short time, especially as it is in contact with venous blood and under arterial pressure.

The prevalent idea that if the ventricle is once distended with air it cannot empty itself, owing to the fact that the air is perfectly elastic and during the contraction merely becomes smaller in bulk, without forcing open the valves and escaping, he does not believe is justified. While the air is perfectly elastic and its volume would decrease with the increasing contraction of the ventricle, so inversely its pressure would increase, and as the ventricle practically obliterates its cavity at the close of the contraction, it seems to the writer that the pressure must open the aortic valves and force the air on.

The rabbit was killed in the above experiments with twenty cubic centimeters of air, but a corresponding amount for a forty-pound child would be 400 cubic centimeters, or far more than enough to occlude all the branches of the pulmonary artery.

As for ordinary hypodermic medication, or serum administration, the writer believes the danger from air injection is absolutely *nil*. In using the Koch syringe for giving small measured quantities of serum, toxins, etc., it is customary, in order to be sure that the entire amount of fluid is injected, to allow one or more small bubbles of air to escape from the needle. During the past six years he has made literally many thousands of such injections into rabbits, guinea pigs, rats, and mice, and he has yet to see any harm come from it.

Similar views to these have been expressed editorially in the GAZETTE within the last year.



*SERUM THERAPY IN SYPHILIS.*

In the *Boston Medical and Surgical Journal* for March 4, 1897, is an editorial dealing with this important practical subject. It shows that the serum treatment of syphilis has been employed hitherto in the three following ways: (1) Injection of the serum of healthy animals: dogs (Richet, Hericourt, Feulard); sheep and calves (Tomassoli, Kollmann, Mozza, Istomanow). (2) Injection of human serum from patients in the secondary and gumous stage (Pellizzari, Wjewiorowski); and from children with hereditary syphilis (Bonaduce). (3) Injections with serum from animals which had been previously inoculated with syphilis by means of (a) injections of the serum of patients with primary syphilis, or at the acme of secondary manifestations; (b) inoculations of primary syphilitic ulcers, and moist papules, as well as injection of serum of patients with the full development of secondary manifestations. No positive good results have thus far been proved to have followed the serum therapy.

Nevertheless, the great success of the serum therapy in diphtheria, and the attempts to produce a serum for the cure of erysipelas, pneumonia, cholera, etc., have encouraged students to continue their investigations of a serum therapy for syphilis. It has been shown in the case of diphtheria that the blood-serum of animals which possess a natural immunity from diphtheria has no therapeutic effect. In order to obtain an antidiphtheritic serum it is necessary that the animals be in a certain measure receptive to the inoculation. Tarnowsky believes that horses are more or less receptive to syphilis, as in some foals inoculated by him with syphilitic products nodular interstitial lesions were found in the liver, spleen, kidneys, and lymph glands, which showed microscopically a great similarity to those of syphilis. If, therefore, these animals are in some degree receptive to syphilis, a serum obtained from them when rendered immune by repeated inoculations would be completely analogous to an antidiphtheritic serum.

On this assumption three young horses were treated by successive inoculations with the products of syphilis, and the serum obtained from their blood was injected experimentally into six syphilitics who had had no previous treatment. The result of these experiments showed that the injection of serum from syphilized horses had no favorable influence on the course of syphilis, not only in the earlier but also in the later stages of the

disease, and that it was not to be recommended as a method of treatment. It was found, moreover, that the injections exercised an unfavorable influence on the general condition of the patients, causing a rise in temperature, albuminuria, outbreaks of purpura, and a loss of weight.

The question of serum therapy as a cure for syphilis may, however, be approached from a different standpoint. In case, as was conjectured by Behring, the efficiency of antitoxin consists, not in a destruction or neutralization of the toxins, but in an increase of the capacity of the system for resistance, it is conceivable that in the treatment of syphilis by mercurials we do not directly disinfect the system, but increase its power of resistance. On this supposition it is possible that the serum of animals which are in some measure susceptible to syphilis, and whose immunity has been increased by saturation with mercury, may be effective in the treatment of syphilis in man. Experiments on these lines have been already undertaken by Tarnowsky.

In 1891 Boeck treated a dozen cases of recent so-called secondary syphilis by means of injections of syphilitic serum obtained from the fluid of a hydrocele, in a syphilitic subject in the secondary stage. The results were not very striking. Of four patients treated in private practice only one had a slight recurrence of syphilitic symptoms. No news was obtained of the hospital patients.

During the last year somewhat similar experiments were made on seven patients from private practice. The serum was taken from a man who had acquired syphilis six years before and was then suffering from epididymitis and hydrocele. In the first six cases the treatment was begun before the outbreak of secondary symptoms, in the last case after the appearance of the exanthem. The injections were made into the skin of the back. The results of these experiments were that the primary symptoms disappeared more quickly under serum injections than under expectant treatment. Sometimes the effect was quite striking. The glandular affection of the primary period was also influenced. When the injections were made before the appearance of secondary lesions the latter were delayed and attenuated, so that the exanthemata were barely visible, and there were few appearances on the mucous membrane. Boeck found that the injections were more effective the earlier they were begun, and that this tertiary serum was far more

effective than that of the secondary period. He is forced to admit, however, that the serum injections do not have nearly so quick and decisive an effect on the symptoms of the early period as the ordinary specifics, mercury and iodine. In six cases of those treated by the injection of serum the secondary period lasted on an average four months and twelve days, and all secondary manifestations had disappeared on an average six months and three weeks after the date of infection. These cases were followed for many months; and Boeck is satisfied that the secondary period was surely at an end. The question now arises, How does this result compare with that attained by ordinary specific treatment? Do not secondary appearances last longer on the average under the latter method?

#### CANCER OF THE RECTUM.

Writing on Cancer of the Rectum TUTTLE (*Journal of the American Medical Association*, April 3, 1897) in conclusion states that:

1. Cancer of the rectum can be cured in over ten per cent. of the cases.
2. The mortality from the radical operation, though still considerable, is not alarming, and is decreasing with every year's experience.
3. The radical operation prolongs life on the average over 100 per cent.
4. As a palliative measure, excision is far more successful and beneficent than any other measure.
5. The sequences, though numerous, are not at all intolerable and should weigh little in our consideration when it is a question of so serious a disorder as cancer of the rectum.

And thus we answer the question, "What has modern surgery done for cancer of the rectum?" It has cured it, conquered all its disgusting features and relieved its pain, doubled and more the lease of life, and at comparatively small risk has given to the hopeless hope, not timorous and vague, but well-founded, and which grows stronger and more confident every day they live without recurrence.

#### PREGNANCY AFTER HYSTEROPEXY.

GIBERT (*L'Obstetrique*, March 15, 1897) is of opinion that ventral fixation of the uterus entails no trouble should pregnancy occur, provided that the anterior and upper part of that organ be fixed to the abdominal walls. The common error of operators is to fix the top of the fundus at the level of the insertion

of the tubes, low down and close over the bladder. The cervix is thus brought upwards, lying unnaturally high and very far back. When pregnancy occurs it is only the posterior wall of the uterus that can develop. In one case, where the fundus was thus fixed the fetal head lay in a natural attitude, though the height of the cervix was awkward for the obstetrician. The shoulders, however, lay in a big pouch to the left, separated from the head by a kind of spur. This pouch was the left half of the back of the uterus, which had developed very irregularly. Turning was effected with difficulty; as the shoulders were delivered the uterus straightened itself, and it was found afterwards that it had broken away from its adhesions. The child was saved. When the front of the uterus is well opposed to the parietes the entire organ can develop during gestation, the cervix is not inconveniently placed at labor, and the anterior adhesion remains intact after delivery. Gibert describes a case in which this satisfactory result ensued. Involution was rapid, whilst in the first case the detached uterus apparently maintained its deformed condition.—*British Medical Journal*, April 17, 1897.

#### SUPRAVAGINAL AMPUTATION OF A PREGNANT MYOMATOUS UTERUS.

A. G. T. BECKING (*Weekblad van het Nederl. Tydschr. voor Geneesk.*, January 16, 1897) reports his third successful case of myomotomy during pregnancy. The patient was a woman aged 38, who had suffered in infancy from convulsions and hemiplegia, and had menstruated irregularly and scantily since her twelfth year. In 1894 she suffered from abdominal pain; and in the succeeding year she married, and thereafter menstruation became more regular. She became pregnant in May, 1896, and shortly thereafter began to suffer from pain in the abdomen and difficulty in urination. Hard masses could be felt in the abdomen, which were diagnosed as uterine fibroids. The abdomen was opened in August, and two subperitoneal fibroids with thick pedicles were discovered, along with several small and large interstitial ones. The whole mass of the uterus and fibroids was therefore removed supravaginally by Treub's method. The mother made a good recovery and left the hospital on the twenty-sixth day.—*British Medical Journal*, March 27, 1897.

## NON-LIGATION OF UMBILICAL CORD.

KELLAR (*Pacific Medical Journal*, January, 1897) advocates non-ligation of the cord; he has practised it in more than 2000 cases, and after careful observation of these and other cases summarizes as his views: (1) Ligation in man is unnecessary because (a) it is not required at birth of any other animal; (b) the imagined necessity to prevent hemorrhage does not exist; (c) to tie for cleanliness is superfluous; (d) it is unreasonable to consider such an imperfection as needs ligature exists. (2) Ligation is in many cases injurious, (a) because it may justly be considered the cause of secondary hemorrhage; (b) by interfering with desiccation, and thus preventing separation, it gives rise to ulceration, with not infrequent consequences of erysipelas, fungoid excrescence, etc.; (c) it causes inflammation of funicular vessels by keeping them distended with unnaturally retained blood, hindering their normal obliteration, and laying a foundation for phlebitis, jaundice, pyemia, etc.; (d) by preventing normal escape of blood and thus causing hyperemia and congestion of portal circulation, it may lay the foundation of numerous infantile affections apparently originating in congestion of these vessels. (3) Certainly in some, and probably in not a few, cases ligature has been directly fatal; (a) numerous fatal cases attributed to ligation have been recorded by the highest authorities; (b) it can be seen in the newborn that the ligature maintains the right ventricle in a state of distension, otherwise relieved by bleeding from the hypogastric arteries, and this prevents renewal of action if the heart has stopped, or hastens its stoppage if it is failing; (c) in many instances removal of the ligature has saved life when other remedies have failed.—*British Medical Journal*, April 17, 1897.

## SIX CASES OF STRANGULATED HERNIA IN INFANCY OR EARLY CHILDHOOD.

PAGET (*West London Medical Journal*, April, 1897) in a paper with this title reaches the following conclusions:

(1) In three cases the hernia seems to have become strangulated while the child was at rest, either in bed, or in its perambulator, or lying on its back.

(2) In two cases, though the bowel had not long been strangulated and was but slightly injured, yet the scrotum was already congested or inflamed.

(3) In three cases, after division of the

stricture, reduction of the bowel was certainly made easier by holding up the child's feet, so that only its head and shoulders rested on the table.

(4) In more than one case the operation was made difficult by the extreme thinness of the sac—a mere film of membrane—and by the absence of fluid from it.

(5) In most of the cases the bowels acted within a few hours of the operation, and in two of them there was slight diarrhea for a few days.

(6) The writer did not do a radical cure in these cases, being anxious not to prolong the operations, and thinking that the tissues, in such very young children, would heal firmly without it; but the relapse of the hernia in Case 3 and the breaking down of the wound in Case 4 seem to show clearly that in all these cases we ought to tie the sac and close the ring.

(7) The breaking down of the wound in this fourth case is somewhat hard to understand. A whole week had passed since the operation; the stitches had not been touched; the wound had been dressed that morning, and then looked firmly healed. In the evening it broke down along its whole length, its edges curling inward like the edges of a wound in the scrotum. He is having sections made of the skin over the inguinal canal in young children, to see if it contains unstripped muscular fibres like the tunica dartos; it is hard to see what else can have made the edges of the wound thus give way and turn inward.

(8) In the last case the hernia was certainly reduced when the child was admitted, for the bowels acted freely for ten days. The scrotum remained much thickened and inflamed, and thus the relapse of the hernia was not at once noticed.

Thus these six cases seem to show that there are some points of special interest in strangulated hernia in infants. It is not unlikely to occur while the infant is at rest, and in infants vomiting it is so common that a strangulated hernia may easily be overlooked, as happened in three fatal cases among those collected from various sources by Mr. Marsh. The scrotum may be congested or inflamed very early, even though the bowel be but slightly damaged. Especial care is necessary in the operation on account of the extreme thinness of the sac and the very small quantity of fluid in it. The return of the bowel after division of the stricture may be helped by lifting the child's feet. The bowels are

likely to act soon after the operation, and to be somewhat relaxed for a few days. In every case a radical cure should be made at the time of the operation, unless the child is so collapsed that it is dangerous to prolong the operation even for a few minutes.

#### CONGENITAL TRANSVERSE DIVISION OF THE GLANS PENIS.

HOFMOKL figures and describes (*Archiv. für Klin. Chir.*, liv, heft 1, 1897) a rare case of congenital transverse division of the glans penis into two parts, a dorsal larger and a lower smaller part. The urethra opened into the middle of the dividing furrow, and was surrounded by a frenulum which passed on to the upper part of the glans, while on the lower part was seen the orifice of a blindly ending duct about two millimeters long. The patient was a man sixty-eight years old who had been twice married and had eight children. He suffered from congenital phimosis, and it was during operation, when the prepuce was turned back, that the anomaly of the glans was for the first time revealed. Hofmohl is unable to find in embryology a clear explanation of the origin of this defect. —*British Medical Journal*, March 27, 1897.

#### GONORRHEA IN WOMEN FROM A MEDICO-LEGAL STANDPOINT.

NEISSER discusses this important question with especial reference to the importance of the diagnosis, which, he affirms, cannot be positively made without the aid of the microscope. A secretion may be present which bears an exact resemblance, microscopically, to gonorrheal pus, but contains no cocci, or in fact any bacteria whatever (*American Journal of the Medical Sciences*). Moreover, it is impossible to determine the time at which infection occurred, since its course differs so widely in different subjects. When the cervical canal is affected, but not the urethra, symptoms may be absent. The writer denies the truth of the statement that obscure acute gonorrheal infection in the female may cause a chronic discharge in the male; the gonococci always possess the same virulence, and when they come in contact with healthy mucous membrane produce an acute inflammation. This explains the violent gonorrheal attacks in newly married women whose husbands regard themselves as entirely cured, and also the similar acute infection of men after intercourse with women whose physi-

cians had discharged them as free from disease. In both instances the secretion is found to contain a few scattered cocci, which are found only after a long search. In the chronic cases the characteristic appearance of the gonococci within the cells is often wanting, and the culture test is frequently unsatisfactory. In short, the microscopical diagnosis is often exceedingly difficult. Still, this is the only one which should be admitted as positive in a court of law. Dr. Simon has recorded the following interesting case: A man aged 37 years was accused of having committed rape upon a little girl five years of age, and of having infected her with gonorrhea. An examination of the greenish pus which escaped from her vagina showed that it contained Neisser's cocci. The accused denied that he had had urethritis or any venereal trouble since an attack of clap fifteen years before, which had been promptly cured. Careful and repeated examinations of his urethra showed an entire absence of any abnormal secretion. A bacteriological examination of the urinary sediment demonstrated the presence of numerous epithelial cells containing bodies which somewhat resembled gonococci, but which, when subjected to staining by Gram's method, failed to respond to the ordinary test. Under these circumstances it was impossible for the expert to submit a positive opinion. Hence the inference that, when the question of the specific nature of an old urethral discharge is to be decided, too much reliance should not be placed on the bacteriological evidence. Even when cocci are demonstrated in the vaginal secretion, the origin of the infection, whether direct or accidental, may remain in doubt. —*Medical Record*, March 20, 1897.

#### VENTROFIXATION.

KUSTNER (*Volkman's Klin. Vorträge*, No. 171, December, 1896) has prepared a valuable statistical monograph on these proceedings, which are condemned by many and strongly advocated by others. Of ventral fixation of the uterus 1120 cases are recorded, 265 in multiparæ, 830 in parous women, and 25 in old subjects. In 637 the displaced uterus was found fixed by adhesions; only seven died, two deaths being from direct obstruction. In most cases the results were noted as "good," but in at least 44 the displacement recurred; 122 became pregnant after the operation; pregnancy and labor were normal in 74. Amongst bad results in pregnant cases were

fifteen abortions and premature labors, one tubal gestation, three crossbirths, and one retained placenta. In two Cæsarean section was found necessary, and in one of these cases it was performed by the operator who had fixed the uterus. Twice as many bad results in pregnancy were noted after Leopold's as after Olshausen's method of ventrofixation. Of vaginal fixations Kustner has collected 376 direct, and 410 where the vesico-uterine fold of peritoneum was opened. The patients were: nulliparæ, 87; parous, 502; elderly, 24. The majority, 514, were in cases where the uterus was not bound down by adhesions, the reverse of the proportion in the ventrofixation series. Three deaths occurred. In 72 patients the displacement of the uterus recurred soon after operation; in 92 functional uterine disturbances followed; out of 46 who became pregnant, 23 suffered no trouble, 13 aborted, 5 had bad labors, and in 5 the retroflexion was found to return in the puerperium. Of Alexander's operation 120 are collected: in nulliparæ 26, in parous subjects 79, no statement of 15. In as many as 100 the uterus was expressly stated to be free from adhesions, in only three was it noted as fixed, and in one of these three the adhesions were broken down as a preliminary operation (Schultze). Recurrence of the retroflexion occurred in one case during convalescence, in 12 later; in 27 the result was expressly stated as satisfactory, but many after-histories were defective; 27 became pregnant; of these details are wanting in two, whilst twenty had normal pregnancies, and five aborted. Kustner gives statistics of several other operations for retroflexion, but they are too limited to be of any practical value.—*British Medical Journal*, April 17, 1897.

#### PRACTICAL WRINKLES IN THROUGH-AND-THROUGH DRAINAGE.

The following is applicable in any part where a through-and-through drainage tube is to be used.

The procedures were suggested and are particularly effective in overcoming certain difficulties in the maintenance of drainage in an empyema.

The first has reference to keeping the tube patulous by removing collections of pus and cutting off the granulations which grow down into the fenestra of the tube. It consists of an ordinary drainage tube with the requisite number of fenestræ, through the full length of which (previous to insertion) a strong silk

ligature has been passed. This silk is of a length about four times that of the tube, and has fastened at about a tube's length from one end of it either a split shot, the size of the caliber of the tube, or a section of rubber tubing. If a section of tubing is used (and this is more satisfactory) it should be of pure gum and just large enough to pass through the tube with some friction. The tube is inserted in the wound in the usual way and both ends are held with safety pins inserted in such a manner as not to infringe on the lumen. The two ends of the silk are knotted to form an endless string with the knot on the outside. When the tube becomes occluded, it is first moved in the sinus to cut off the granulations, and then the drag is pulled through the tube and everything in the form of pus is completely removed.

The second refers to the secondary or horsehair drainage. This consists of a strand of horsehair of the required thickness which has, at the proper distance from each other, two silk threads tied tightly around the strand with one end of each cut short and the other left the length of the drain. The strand is then cut squarely off at each end, one-fourth of an inch beyond the knotted silk. Then the knot and end of the strand are covered with sealing-wax which is shaped into a round probe and with the silk cord protruding from the tip. To insert the horsehair, the silk is attached to the silk of the drag, and the probe end is brought up snugly into the end of the tube. Then, as the tube is removed, the drain follows without giving extra pain. In case there is no cord in the tube, the silk of the drain can be threaded through a curved needle and the needle passed through the wall of the tube from within out. Then the end of the drain can be drawn up into the tube as before. After the drain is in place the two silk cords can be knotted. This will be found especially advantageous with children and nervous people; one quick jerk will remove the tube and locate the drain.—*Medical Record*, March 20, 1897.

#### PECULIARITIES OF THE SURGICAL DISEASES AND INJURIES OF THE POSTERIOR REGION OF THE NECK.

SOUCHON in the *Journal of the American Medical Association* for April 17, 1897, concludes an exhaustive paper on the above topic as follows:

Congenital atrophy and hypertrophic malformation of the posterior region of the neck are rare. Congenital deviations are due to the congenital affections of the vertebræ and to torticollis.

Acquired or post-natal malformations, atrophic and hypertrophic deviations, are due to neuroses (torticollis, paralysis), to injuries, inflammations, gangrene, ulcers, fistulæ, tumors, operations, cicatrices.

Swellings of all kinds, due to the same causes, may be observed, but present nothing peculiar; the most common is the one produced by the chronic arthritis of the articulations between the occipital and the vertebræ themselves, and called the post-cervical or occipital arthritis or sub-occipital disease.

Burns and frost-bites are only particularly important here because of the cicatrices which may follow, causing disfigurement in an exposed part, and also possibly causing deviations of the head from retraction.

Contusions are more frequent than in front; they are particularly painful because the muscles contused are those which keep the head in balance; they are often accompanied by fracture of the spinous processes and laminæ; contusion and concussion of the spinal cord and even of the brain.

Punctured, non-penetrating wounds, *i.e.*, not penetrating the vertebral artery and the spinal cord, are simple wounds and seldom give rise to any trouble. However, should they be large punctured wounds and strike the deep cervical artery or the posterior jugular vein, they may give rise to serious hematoma. When this persists it should be aspirated or incised. When it pulsates it is a traumatic aneurism of the said artery and it should be treated as such. Punctured wounds of the vertebral artery may give rise to an aneurism also which must be treated as such, that is, by ligating above or below, or both, when possible, and then incised. Much hemorrhage must be expected from the untied end, and the surgeon must plug tight with aseptic sponge and make firm pressure with a bandage.

Punctured wounds of the spinal canal through the interlaminar spaces, when the head is flexed forcibly, or through a fracture of the laminæ, are serious only if they become infected. Incised wounds reaching the spinal cord itself are followed by paralysis of the parts below. If the wound is and remains uninfected the cicatrization by primary union may take place and the paralysis disappear; if not, it will be permanent. If between the

occipital and the atlas or the axis the oblong medulla is severed, death is instantaneous. Infanticide is often produced by a long needle or pin driven between the occiput and the vertebra. If the lesion is above the origin of the phrenic, death follows quickly by paralysis of the diaphragm. Incised wounds of muscles are usually due to saber cuts; they may reach the vertebræ when the head drops forward; the hemorrhage is great. Incised wounds of the vertebral artery give rise to profuse hemorrhage. The peculiarities of the treatment of these wounds is prompt attention to the vertebral, the impossibility of ligating both ends if it has been wounded high up, the suturing of the large muscles, the difficulty of keeping the head steady, and to secure drainage; a liquid glass bandage or a jury-mast apparatus will assist materially.

Wounds of the posterior region are said to be followed by sexual impotency when the membranes of the cord are involved; by paresis and wasting of the lower extremities; also of the testicle. Larrey contends that this may take place even when the cord is not affected. Contused or lacerated wounds present nothing particular.

Gunshot wounds are usually serious if they reach the membranes on the cord. When pressure symptoms are present, very extensive and deliberate dissections must be done to remove the ball, the fragments of broken lamellæ, or clots, or foreign bodies, which cause the pressure. Poisoned wounds, stings, bites, present no peculiarities. Foreign bodies causing pressure-symptoms on the cord must be removed at almost any cost.

Ruptures of the muscles of the nucha are reported in those who carry heavy loads on the head; the symptoms are those of other muscular ruptures.

Ruptures of the attachments of the rhomboid and of the elevator of the angle of the scapula have been seen in farm laborers. Sprains, dislocations, fractures of bone, belong to another chapter. Shock accompanying the injuries of the posterior region is usually great, being often complicated with concussion and confusion of the cord, of the cerebellum, or of the whole brain.

Neuroses are represented by the acute torticollis (posterior) of the trapezius. It is said to be even more frequent than the torticollis of the sterno-mastoid. When in the trapezius and complexus the head is inclined to the affected side, but the face is turned toward the opposite side; the head is slightly

thrown backward. There is no cord, no diffuse induration, no atrophy of the face; the pain is near the atlas and is increased by pressure; under anesthesia the head can be straightened. This torticollis may be confounded with occipital arthritis with inclination of the head. The treatment consists in applying a soluble glass bandage apparatus; it should be worn one year. When both the trapezius muscles are affected the head is thrown back. In cases of torticollis of the trapezius the sterno-mastoid is often also contracted, but it is a contraction of immobilization; the pain is along the trapezius and not along the sterno-mastoid. Very often the torticollis affects also simultaneously the deeper muscles, the splenius, the elevator muscles of the scapula, the rhomboid. The scalenes and the platysma are sometimes the site of torticollis. Chronic or permanent trapezius torticollis is rare.

Softening or induration present nothing of special interest.

Congestion of the posterior region presents nothing special. Acute inflammation of the skin is represented specially by large boils and carbuncles; they are comparatively very painful; they give great pain because the tissues are inextensible; sometimes they are followed by extensive sloughing, when the general health is low, specially if diabetes be present; they are also serious because the veins of the upper part of the region open into the sinuses of the dura mater. The circumscribed anthrax is not as grave and is usually amenable to ordinary treatment. Diffused anthrax extends continuously from the superior curve line of the occipital to the seventh cervical and from one ear to the other; nothing stops it, not even the largest or deepest incisions, until it has reached the above limits. It is as if a certain extent of tissue was infiltrated with microbes, or as when an artery is obliterated and gangrene continues until all the area of the artery is mortified (Tillaux). Extensive incisions are even hurtful until limitation has been established, on account of the shock of the operation. When limitation has taken place, then incisions or the curette assist in removing the mortified tissues. Acute cellulitis, extensive gangrene, post cervical abscess, or phlegmons, are sometimes observed here when the general health is low, specially if diabetes be present, and for the other reasons explained above. They are really adeno-cellulitis or phlegmons, because all inflammation here begins in the glands; they are usually due to

the disease of the skin and scalp; they may be superficial or deep. Deep abscesses usually cause great pain on account of the thickness of the skin; they give rise to but very little redness and edema; they have a tendency to flatten and spread because of the thickness of the skin; they are slow in becoming superficial for the same reason; the knife must penetrate deeply to reach them. Acute lymphadenitis, however, is itself rare; it is due to lesions of the scalp and skin. Chronic inflammations are represented specially by ache, by syphilitic eruptions, and by the well-known syphilitic adenitis of the suboccipital and mastoid regions; these lesions are so constant in syphilis that Ricord used to say that was the place to feel the pulse of syphilis.

Gangrene of the region is serious when extensive or deep, on account of the cicatrices and their consequences. Ulcers are rare and present no peculiarities. The same is true of fistulæ.

*Tumors of the posterior region of the neck.*

—Gaseous tumors are represented only by the extension of an emphysema.

*Liquid tumors.*—Liquid hematoma presents no peculiarity. Varix and angioma are very rare. Aneurisms of the vertebral artery are not rare in this region; they are usually traumatic and are often high up. The artery should be ligated above and below, if possible, or above or below whenever possible, and the sac incised and immediately plugged with aseptic sponges; if possible, the distal bleeding end should be ligated. In case a secondary hemorrhage should occur through the distal end and be uncontrollable by plugging, the ligation of the vertebral on the other side must be considered and weighed.

Lymphangiomata are rare here. Serous cysts and congenital cysts are sometimes median and sometimes lateral; they may reach as low down as the dorsal region and from the rachis to the acromion; they are usually met with in children born prematurely and presenting other malformations; they are sometimes transformed into lipoma; according to Lannelongue they are congenital cystic lymphangioma. Mucoid cysts and dermoids are rare and present no peculiarities. Bursal cysts or hygromata are sometimes met with over the spinous processes of the seventh cervical. Purulent cysts or chronic abscesses, idiopathic or symptomatic, or by congestion, are rare here.

*Solid Tumors.*—Comedones are not rare, neither is keloid. Clotted and solidified hem-

atomas present no peculiarities. Sebaceous and dermoid cysts are usually difficult to dissect because they are so intimately adherent to the surrounding tissues. Simple adenoma or lymphadenoma, adenoma of Hodgkin's disease, strumous and tuberculous adenoma, are comparatively rare. Adenomata syphilitica, *i.e.*, the chronic enlargements spoken of above, are very common and almost pathognomonic of syphilis. A case of gumma of the trapezius has been recorded. Adenoma due to glanders is most rare.

Lipoma is common. The circumscribed form is the most frequent; this region is a site of predilection; it sometimes sends fibrous processes to the vertebræ. A peculiar circumscribed form of lipoma is described in prostitutes over the point of junction of the neck and back of the curve seen there, and due, it is said, to the position they so often have to assume. Diffuse lipoma is sometimes limited to the region and sometimes a part of the diffuse kind of lipoma which occupies the whole circumference of the neck like a cravat; it is such in some cases that it is impossible to fix the limit of its margin, *i.e.*, to say where it ends and where the natural fat begins. Fibroma of the region sometimes also presents adhesions to the vertebræ. Cervico-dorsal fibromata are common (Guyon); myxema, myoma, neuroma, chondroma, osteoma, are rare. The same is true of encephaloid, melanotic, colloid pulsating sarcoma, epithelioma, carcinoma, scirrhus; and they present no peculiarities.

The surgical operations of the posterior region of the neck present no peculiarities.

#### DILATATION OF THE STOMACH.

LYMAN in a paper on this subject in the *Journal of the American Medical Association* for April 17, 1897, states that the recognition of well-marked dilatation of the stomach is not difficult. Congenital enlargement or normally low position of the stomach may be differentiated from morbid dilatation by the fact that they are not attended with ill-health. Gastric dilatation that is dependent upon duodenal obstruction may be recognized by the fact that the patient vomits bile—since the obstruction is usually placed below the orifice of the common bile duct—while in cases of pyloric stenosis the vomited matters are free from admixture with the biliary excretion.

The prognosis in this disease is always doubtful. While dilatation is caused by ma-

lignant obstruction of the pylorus, death is inevitable. Under the most favorable circumstances, relapses are frequent and cures are uncertain.

For the treatment of gastric dilatation the first thing to be attempted is the emptying of the stomach. This can be most easily and safely accomplished by the use of a soft rubber stomach tube, to the upper end of which a funnel is attached. Considerable difficulty usually attends the introduction of the tube before the patient has become accustomed to its intrusion into the pharynx, but with a little practise he learns to swallow the pliable siphon without irritating the nervous centers for retching and vomiting. Once carried to the bottom of the stomach, water of a temperature of about 90° F. should be poured into the funnel until it ceases to flow rapidly into the tube, or until the patient complains of too great pressure. The funnel should then be inverted and lowered below the level of the stomach, the tube being compressed by the thumb and finger of the operator, until the necessary adjustment of everything has been completed. Removal of pressure from the tube is then promptly followed by the evacuation of the contents of the stomach through the tube, which is thus converted into a siphon. If the opening of the tube should be obstructed by the entrance of fragments of food, it may be cleared by pouring a little water into the funnel, or by raising it up and down, or by making pressure with the hand over the gastric region. So long as the water that returns is turbid the operation should be repeated—filling and emptying the stomach until its cavity is thoroughly cleared. It may then be washed out with a solution of table salt—a drachm to the pint—or with a similar solution of Carlsbad salt—a half drachm to the pint. In this way the stomach may be completely relieved of its fermenting contents. The siphon tube is preferable for this purpose rather than the stomach pump, which is less convenient and much more liable to wound the gastric mucous membrane. In all these operations great care must be taken to avoid violence to the mucosa, otherwise the appearance of detached fragments of membrane in the wash-water will not be uncommon. Certain experts would have us believe that such evidences of injury are symptomatic of special forms of disease within the stomach, but this is doubtful. Under any circumstances the passage of sounds and tubes into an unsophisticated stomach is no trifling matter. Patients sometimes become



convulsed and unconscious when thus treated for the first time; but usually they soon become accustomed to the contact of a siphon tube and find great relief through the removal of the offending matters. The renewal of decomposition may then be at least delayed by the administration of drugs that arrest fermentation, such as sodium salicylate, resorcin, creosote, benzosol, and carbolic acid. The daily use of the siphon should be continued until satisfactory evidence of improvement is apparent. It may then be introduced every other day, and with less frequency as the case progresses more favorably. In all cases the treatment must be continued for a long time, and when the disease is caused by pyloric obstruction, it is impossible to lay aside the tube before the end of life, unless the difficulty can be removed by a surgical operation upon the pylorus. Patients can be taught to introduce the tube and to wash out the stomach themselves, but as a general thing the physician should maintain a careful supervision of the case in order to prevent mechanical injury of the food passages or to avoid the effects of ignorant use of healing methods.

Having provided for the cleansing of the stomach, it is needful to take measures for increasing the tone and vigor of its muscular coat. For this purpose the patient should remain in bed for several hours after each operation of lavage, and should apply to the epigastrium and gastric region an ice bag wrapped in a napkin. A sponge bath with cold water should be taken every morning on rising and on retiring at night. If so situated that he can use shower baths of cold water they should be taken every day—preferably in the morning. If the patient is feeble and over-sensitive he should stand in a little warm water while taking the bath. Daily massage of the whole body is another valuable means of increasing the muscular tone of weakly individuals. Light gymnastic exercises and walking in the open air must be enjoined, and the patient must be taught to aim at procuring at least two hours of such exercise—an hour in the morning and another in the evening. If the heart and kidneys are free from disease, horseback exercise and moderate bicycling will be found useful. The daily application of faradic electricity—placing one pole behind the spleen and moving the other over the region of the stomach for five minutes once or twice a day—is often very beneficial. Good results are also derived from intra-ventricular faradization—passing

one electrode into the stomach while the other is applied externally in the usual way. But one should be very sure of the loyalty of his patient before employing this method.

The patient must receive his food in small quantities every two hours. Liquids must be largely withdrawn from the diet list. Thirst may be relieved by rectal injections of cold water thrown high up into the colon with a long tube. Sugar, starch, and fat should be given in very small quantity, because of their tendency to fermentation. The food should consist chiefly of tender meat well minced, toasted bread, milk, soft-boiled eggs, oysters, and concentrated broths. As improvement appears a larger variety may be gradually introduced.

In the administration of medicine it is necessary to provide for an increase of motor and digestive power while endeavoring to prevent the process of fermentation in the gastric contents. For the first object, one-fiftieth of a grain of nitrate of strychnine may be injected hypodermically every six hours. Ten drops of dilute hydrochloric acid should be taken in four ounces of hot water after the three principal meals each day. One-half hour before each of those meals the patient should take five grains of salol or of salicylic acid, or a grain of resorcin or of carbolic acid, or five grains of sodium hyposulphite, to check the fermentative process during the approaching period of attempted digestion. As soon as the patient begins to feel able to remain for a considerable time in the open air the anemia that is present may be controlled with large doses of carbonate of iron.

Recently the aid of surgery was invoked with some degree of success for the relief of those forms of gastric dilatation that are dependent upon stenosis of the pylorus. Notwithstanding the high degree of mortality, it is sometimes the only resource, and fortunately with increasing experience the death rate is slightly diminished. In certain obstinate cases without pyloric obstruction the operation of folding the anterior wall of the stomach upon itself and sewing the border of the greatest curvature to the margin of the upper curve of the organ—just as a sailor takes a reef in a sail—has been performed with tolerable success.

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*BRUNS ON THE EVOLUTION OF THE  
MODERN TREATMENT OF GOITRE.*

Two years ago the only treatment in vogue for goitre was the old and untrustworthy

remedy, iodine. At the Sixth Congress of German Surgeons, in the year 1877, attention was called by Rose, based on his own experience, to the radical cure of goitre by extirpation. This communication was particularly timely as the beginning of the antiseptic era prepared the ground for the greatest surgical undertakings. It is interesting to note how rapidly the excision of the thyroid and improved results followed. In twenty-seven years prior to 1877 only 150 excisions of the thyroid had been recorded, with a mortality of twenty-one per cent.; while in the five years following 1877 there were 240 operations, with twelve per cent. mortality.

Operations for extirpation of the thyroid lost their greatest drawbacks and dangers—secondary hemorrhage and wound infection—not only with the development of antiseptic measures, but also with the perfection of methods and technique of operation.

Prior to this time the operation had been conducted as in ordinary extirpation of a tumor, the goitre being superficially isolated and all blood-vessels ligated as cut, the result being that the same vessel was often divided in different places and required repeated ligation.

The separation of the cellular tissue was often pursued too far, resulting in extensive bleeding, requiring ligatures *en masse*, obscuring the entire operative field, and jeopardizing the nerve-trunks. This uncertain method of atypical tumor extirpation was now transformed into the typical extirpation of a viscus, an absolutely safe operation, and for the experienced operator a bloodless and complete procedure. The credit of devising a systematic operation belongs, above all, to Billroth, and next to Kocher, who essentially perfected it. It depends on the certain principle of exact anatomical knowledge concerning the course of the arteries and veins of the thyroid, and of the recurrent nerve, so that the essential object of the operation is the typical exposure and isolated ligation of the main arteries and veins at their well-known situations, and the speedy and bloodless isolation of the tumor.

Another important advance was the experience demonstrating the needlessness of tracheotomy, which many operators formerly had considered absolutely necessary in facilitating excision of the goitre and preventing the after-collapse of the trachea. Tracheotomy not only interferes with aseptic wound-healing, but before as well as after excision of thyroid it is absolutely unnecessary, even

in the greatest degree of compression of the trachea. The respiratory disturbances immediately subside after removal of the goitre. It may be laid down as a rule that even in the greatest dyspnea and danger of suffocation the operation which is indicated is not immediate tracheotomy, but immediate extirpation of the goitre. The total extirpation of the thyroid as a radical cure, as recommended by Rose, advanced in favor more and more, and reports of 400 such cases were recorded. Its popularity was due to the belief that it prevented recurrence from remaining portions of the gland, and apparently was attended with no greater difficulty and danger than the partial operation. No doubt existed as to the propriety of removing the whole organ, as at that time the physiological importance of the thyroid was not known. Very soon, however, came the reports of severe after-effects of total operation, such as tetanic convulsions severe enough to cause death, and that chain of manifestations included under the term "cretinism." An early report from Reverdin, in 1882, failed to attract attention. The next year, at the Twelfth Congress, Kocher communicated his report on "Cachexia Strumipriva," which made a marked impression. Surgical opinion did not at once universally accede to these views as to the existence and cause of the disease, and not until numerous victims of this condition had been discovered was this long-neglected gland recognized as an important vital organ. Total excision of the thyroid, formerly the routine procedure, was at once and forever stricken out as an operation of physiological incompatibility. Conservative surgical methods were now sought for, having for their object the removing of the goitre, but not of the entire thyroid gland. A time-honored method of treatment inaugurated at the beginning of the century by Philip von Walther, and lately revived by Wolfier, now came into vogue. This is the typical ligature of the thyroid arteries to promote artificial atrophy of the gland. The operation was, however, scarcely performed fifty times in the last decade, having attracted little attention except as a purely theoretical measure, for the richness and irregularity of the vascular supply of the thyroid make the task practically hopeless. An operation which was destined to receive quite a different degree of attention now came to the front. The operation of enucleation, which had occasionally been practised by some surgeons in the case of the cystic variety since its recog-

nition by the Italian surgeon Porta in 1840, was now established by Socin as a typical method even in treating the solid forms of goitre. The method received immediate acceptance, and constitutes to-day one of the most notable developments of modern thyroid surgery. Instead of stopping short on the surface of the gland for fear of wounding its veins, in Socin's method the parenchyma of the gland is deliberately divided till the cyst lies exposed, and this is then shelled out by blunt dissection, entailing no loss of normal glandular tissue. The essential principle of the operation lies in accurately locating the capsule of the cyst and keeping absolutely close to it without encroaching on the surrounding glandular tissue and its numerous delicate blood-vessels—a procedure requiring the greatest patience and technical skill. Very often, however, enucleation is quickly performed, accompanied by little bleeding, without nerve lesion, and the wound healing undisturbed. The operator must have a clear perception of the limitation of the operation of enucleation. It is undoubtedly the normal procedure in the less vascular cystic variety, as well as in the solid forms where the nodules are loosely attached and the capsules clearly defined; and, likewise, it is absolutely indicated in goitre involving both sides of the gland where the preservation of gland tissue on one or both sides is shown to be necessary. The operation must not be undertaken when it is impossible to recognize a definite demarcation between the normal gland tissue and the diseased nodules, or where extensive adhesions are present. Here the procedure is attended with a profuse or uncontrollable hemorrhage. The character of the operation is terrifying, and not infrequently cannot be carried out to a finish.

We possess in resection of the thyroid a procedure which replaces enucleation where the latter is contraindicated. It has the advantage over enucleation of efficient hemostasis, and over extirpation in the preservation of normal glandular tissue. Its chief advantage lies in the possibility of varying the method of operating. Sometimes the hilus or the isthmus can be left, or else the lower portion. It can also be combined to great advantage with enucleation. Mikulicz was the first to perform resection of the entire one-half of goitre as a typical operation.

As regards the results of the modern operations it can be briefly stated that to-day operations for non-malignant forms of goitre are practically without danger, provided in-

terference is resorted to before the advent of serious pulmonary and cardiac complications attending long-continued changes in the gland. It must be acknowledged, however, as regards the ultimate results, that the partial operations have been attended with a considerable proportion of unfavorable results, owing to the frequency with which both diseased and normal glandular tissue is preserved. The recent investigations leave no doubt that the number of recurrences after operations for goitre considerably exceeds our expectations.

It is noteworthy, however, that notwithstanding the numerous recurrences secondary operations are but seldom called for. The statistics of 800 operations furnished by the cases of Socin, Kroenlin, Krappeler, and the author have in scarcely a dozen cases required operation for recurrence. We are justified in considering operation for the relief of goitre as one of the most useful surgical methods at our disposal, as it brings about an immediate disappearance of the most terrifying asphyxia, and is attended with a result so radical as usually to hold good for the entire existence of the individual.

#### *INTESTINAL ANASTOMOSIS BY THE MURPHY BUTTON.*

DUNN (*International Journal of Surgery*, March, 1897) reports the following interesting case:

About 2 P.M. January 1, 1896, a nurse, aged twenty-five, was taken suddenly, while lifting, with a severe pain in her right groin. Having experienced similar transient attacks twice before, she went to bed, applied hot applications, and awaited Dr. Dunn's arrival. On his arrival at 10 A.M. on the 2d he found her suffering from a strangulated femoral hernia.

After an hour's delay, at the patient's request, operation under chloroform narcosis was undertaken. The pain and distress had evidently been pretty severe during the twenty-one hours of strangulation, but there had been little vomiting, and the incarceration was so brief that he was taken by surprise, on opening the sac, at finding three inches of small intestine, its only contents, apparently gangrenous. The opening was enlarged sufficiently to relieve all constriction, the loop drawn further down, and warm, moist compresses applied for twenty minutes, when it became perfectly evident that the loop of intestine was necrotic, and that a re-

section of a trifle over three inches of small intestine must be resorted to. The segment was cut out with scissors between the fingers of an assistant and an end-to-end anastomosis with a Murphy button readily established in about ten minutes. The intestine was then returned, the deep parts closed with fine silver-wire buried sutures, and the skin by a continuous subcuticular silkworm-gut suture. The patient made a perfect recovery, without vomiting, pain, febrile reaction, or other disturbance. The button was passed on the eleventh day. The subcutaneous stitch was withdrawn on the fourteenth day. She kept the bed for four weeks, when she resumed her duties as nurse, and up to date (thirteen months) has been in perfect health, without recurrence of the hernia, or any disturbance of the gastro-intestinal tract. The buried wire sutures have caused no irritation; though in one or two other instances among many cases in which the writer has used them they have been the cause of slight discomfort at times.

The writer has had occasion to use the Murphy button in seven operations, viz.: two cholecystenterotomies, two gastro-enterotomies, one end-to-end anastomosis of small intestine, one entero-colotomy, and one anastomosis of end of resected ileum to the side of the ascending colon. Excluding the latter case, in which no treatment could have hoped to avail, the button has served him with the utmost satisfaction.

After some experience with the various sutures, plates, and the button, he concludes:

1. No other method of anastomosis can compare in rapidity and ease with that by the button. None requires so little destructive handling of the viscera, none so conservative asepsis in handling an open intestine.

2. A good button applied with skill is more trustworthy against leak and slip than the stitching of any surgeon, however skilful.

3. On its separation (which appears to be pretty uniform at about ten or twelve days) no foreign substance is left in the tissues, and while present it does not act as a septic seton to convey infection into the tissues, as deep sutures must do.

4. The scar is but a fine line scarcely discoverable on the peritoneal surface, and with a minimum of connective tissue. The opening, a trifle larger than the button, presents every guarantee possible to any reunion against contraction, viz., a rapid, aseptic, and complete healing, which cannot lead to progressive contraction unless disease subse-

quently attacks the scar. It is a ragged, delayed, septic wound which leads to cicatricial contraction. There seem to be many objections still urged against the button, most of them theoretical rather than practical. Any one who has used or even seen the button used must admit the wonderful rapidity and ease of executing these operations by its use. It is difficult to see how any mechanical mind can doubt its greater accuracy of coaptation. That its work is more liable to progressive contraction than any other method of reunion whatsoever is disproven by both experience and theoretical deduction from known pathological principles.

Of all the objections which have come to my knowledge but two would appear worthy of much credence, viz.: 1. In a few cases, especially of gastro-enterotomy, the button has failed to pass. Under ordinary circumstances, when the opening is at the most dependent part of the large viscus, this accident must be rare. As already observed, the button has been promptly recovered in each of my cases; and a large experience of the profession in general has amply demonstrated that under ordinary conditions no apprehension need be exercised on this score. Under conditions which might excite a fear of the button falling into a cul-de-sac powerless to expel it, further modifications in the operative technique will, doubtless, prevent this accident. Dr. W. J. Mayo, of Rochester, Minn., has suggested attaching a thread of considerable length to the button and carrying it into the distal portion of the intestinal tract, as a "hold" for the peristaltic force of the tract. The suggestion seems sensible, and may prove useful in certain gastro- and cholecystenterotomies, in which a powerless pocket awaits the loosened button, should it drop off on the wrong side. 2. Some have feared that the small opening in and the weight of the button might lead to acute obstruction. Certainly experience has shown this to be more theoretical than practical. Obstructions after abdominal operations, from one cause or another, occasionally occur; but they have not been especially frequent after the button.

In short, if he were under the unpleasant necessity of having to undergo an anastomotic operation upon his own primæ viæ, he would doubly prefer to trust to the risks of the button than those of any suture or any device yet discovered in the hands of any operator.

## TUBERCULIN.

KOCH, in a comparatively recent communication to the *Deutsche Medicinische Wochenschrift*, again calls attention to the fact that his old tuberculin does not affect the bacilli of the disease, but simply immunizes against the toxins. He now believes that he has discovered a derivative which causes no systemic reaction, which immunizes, and which will cure cases of beginning tuberculosis. That this can be done in animals is proven conclusively. In the application of the method to man injections are given every other day, beginning with a dose of .002 milligramme a day and gradually increasing to .5 milligramme. During the period when the dose is being increased a careful watch must be kept upon the temperature, which should not rise even one degree. On the slightest febrile tendency treatment must be discontinued until the temperature drops to normal. When tuberculosis is complicated by infection with streptococcus the effect of the treatment is likely to be disappointing, and indeed it is scarcely indicated in those cases which exhibit a temperature of 100.5° F. It is thus apparent that the method may have its most valuable indications in the treatment of local tuberculosis, such for instance as that which develops on the surfaces. Indeed, it is in this class of cases that Koch has had his best results.

The drug can be procured in glycerin solution, each centimeter of which contains a milligramme. The minute initial doses are obtained by diluting this extract with a normal salt solution.

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THE DIAGNOSIS AND PROGNOSIS OF  
CHRONIC GONORRHEA.

That little dependence can be placed upon the mere cover-glass preparation of urethral threads, by staining and microscopic examination with its attendant time-consuming labor, because the absence of the gonococcus in those preparations examined does not justify us in pronouncing a case free, has been recognized now for a long time, and yet is probably the only method pursued by a majority of physicians to-day to establish the fact of the presence or absence of this germ. Its absolute worthlessness was startlingly illustrated by KOPP in a paper read by him in September, 1893, before an association of German scientists and physicians, in which he reported seven cases of young men with chronic trouble where he had pursued this

method of examination alone, and after making in each case a series of from sixteen to twenty-five examinations and not finding the gonococcus, had allowed marriage. In all seven cases the wives, shortly after marriage, were found to be infected, gonococci being found in their secretions.

About this time Von Schlen, of Hanover, described his "third-glass test" for obtaining secretions from the prostatic follicles. After the patient has held his urine three to four hours he is to urinate into two glasses after the old method, and still to retain some urine in the bladder; with the finger passed into the rectum, by pressure and massage of the prostate its contents are pressed out into the urethra; the patient then urinates into a third glass. This method will afford a further collection of material for examination, and also suggests a method of treatment which has been put into practise by many—namely, massage of the prostate.

Independently and about this time Dr. Fuller described his method of examination and treatment for seminal vesiculitis, showing the dependence, in many cases, of persistent urethral discharges upon this condition. There can be no question that many cases in which gonorrheal disease is supposed to have disappeared may be found having a chronic inflammation of these organs, prostate, and seminal vesicles; or, if not a chronic inflammation, at least harboring pathological material. And yet the urine passed into two glasses, as ordinarily done, will be found to be clear or will show a faint, floating mucous shred, which when stained will reveal only mucus, a few epithelial cells, and perhaps here and there a leucocyte; but no gonococci will be found after the most prolonged search. These cases are thoroughly capable of transmitting the disease, and the fact perhaps will account for some cases of post-nuptial infection, where the husband was supposed to have been cured.

The question of the superiority of culture tests over microscopical examinations for the detection of the gonococcus may readily be admitted, but sufficient work has not yet been done along these lines to establish this superiority thoroughly. One of the most valuable contributions to this side of the question is that by Dr. Heiman, in which he gives the results of a series of examinations of chronic urethral threads by both the microscope and by culture tests in sixty-one cases. A glance at his tables, however, gives us a genuine surprise—that is, the very slight superiority

which the examinations by means of culture experiments have over the examinations by means of the microscope for the detection of this micro-organism.

Out of sixty-one cases, gonococci were detected by means of the microscope in thirteen, while by means of culture media in only fourteen cases was their presence established; so that unless the method of examination by cultivation can be proved to be easier, shorter, less tedious, and more certain, unless we can feel that we can rely upon it with greater confidence, but few will be tempted to add a culture plant to our ever-increasing armament. In medico-legal cases, of course, the culture experiments could not be omitted.

Heiman gives some valuable hints in the methods employed for the collection of the materials to be examined. He had the patients urinate in small sterilized tubes, which were placed in the centrifuge, thus quickly collecting all the material for examination. His work, however, is far from being finished; there are two portions at least of the genito-urinary tract on which some one must spend his time and patience, namely, culture experiments placed side by side with microscopic examinations of material obtained from the glands of Littre and the pockets of Morgagni, and from the seminal vesicles. Then, too, though Dr. Heiman in his cases includes examination of material from the prostate, a perusal of his article would lead one to suppose that this was not certainly done in a thorough manner. The prostate was pressed upon with the finger while the patient was urinating; it does not seem as if this would express the material sufficiently—in fact, it is not the best way to accomplish the purpose. The expression should be made while there is urine in the bladder, but not during urination.

The microscopic examination and detection of gonococci in material expressed from the glands of Littre and Morgagni, and from the prostatic follicles, separating this from that which comes readily from the urethra, has already been done in a series of cases by Pezzoli in Finfer's clinic. The method of separation of material from different portions of the canal was ingenious, and of course requires patience and considerable training. First the anterior urethra is irrigated by means of a retrojection catheter with distilled water, the washings caught in a glass vessel and labeled (*a*), material from anterior urethra. Then the patient lies on the table, and the largest size *bougie a boule* capable of pass-

ing the meatus is passed down to the bulb, with the penis laid over the tubes. One hand of the operator gently presses the organ, and the instrument is moved back and forth several times from bulb to meatus. The urethra is again irrigated with distilled water, the washings caught and labeled (*b*). These are the expressed contents of the urethral glands and pockets. Then the patient urinates into one glass labeled (*c*); this contains threads from the posterior urethra. Then, if the urine be clear (*i.e.*, the urine still remaining in the bladder), the prostate is massaged, and he urinates into another glass labeled (*d*). This represents material from the prostate. If the urine is all cloudy the bladder is emptied and then filled with a normal salt solution before the prostate is massaged.

The material in these four receptacles is collected by the centrifuge or by filtration. Pezzoli made all his examinations by the microscope alone, but he established the following points: 1. That the urethral glands and pockets in the acute stages of a gonorrhea are almost without exception affected. 2. That in cases of chronic anterior urethritis gonococci will be found more frequently in the glands of Littre and the pockets of Morgagni than in the anterior urethra itself. 3. That in chronic posterior urethritis the prostatic follicles are also involved almost without exception.

It would seem as if a most valuable study could be made, after this manner, by placing culture experiments side by side with the microscopic findings.

In forming a final judgment as to the probable disappearance of gonococci, the value of an irritant injection of either silver nitrate or bichloride of mercury solution must not be forgotten; but this can only be of value in the anterior urethra and its glands, for gonococci in the recesses of the prostatic follicles or in the seminal vesicles need not necessarily be awakened by the traumatic anterior urethritis evoked by the irritant injection.—*Journal of Cutaneous and Genito-Urinary Diseases*, March, 1897.

#### INTERNAL STRANGULATION FOLLOWING UPON RESECTION OF THE INTESTINE.

Within the last two months cases have been recorded by HEIDENHAIN and by BRAUN in which a patient, after recovery from an operation involving the removal of a portion of the intestine, has developed

symptoms of intestinal obstruction. In operating for the latter condition it was found in each of the two cases that a gap had been left at the first operation between the divided mesentery and the intestine, through which one or more coils of bowel had passed and become strangulated. In Heidenhain's case this took place seven weeks after the first operation; in Braun's case there was an interval of five years between the original resection of the bowel for a gangrenous hernia and the subsequent internal strangulation. In operating for the latter condition it was found that a portion of the small intestine, seven feet in length, had passed through the gap which had been left at the original operation between the mesentery and the intestine and the point at which the latter had been resected and reunited, and had become twisted upon itself and strangulated. It is therefore essential, in all cases in which a portion of bowel is resected, that this gap should be accurately closed, in order to prevent the later occurrence of internal strangulation.—*Edinburgh Medical Journal*, April, 1897.

#### TREATMENT OF OLD FRACTURES OF THE PATELLA.

SUBERCAZE (*Thèse de Paris*, No. 23, 1896-97) holds that unless the interval be very short cure is hardly possible without surgical intervention, which should be undertaken as soon as the formation of callus is nearly or quite over—that is, about three months after the injury. If extension be deficient, the fragments should be united by suture. If they cannot be brought together he recommends osteotomy of the tuberosity of the tibia, or section of the tendon of the patella. In other cases the upper fragment of the entire patella may have to be removed. Cautious early movements (ten days after operation), and progressive exercise, massage, and electricity may give good results.—*British Medical Journal*, March 27, 1897.

#### ASEPSIS AND ANESTHESIA IN URETHRAL SURGERY.

Dr. JOHN A. WYETH, in the *New England Medical Monthly* for January, treats of the modern technique of urethral surgery, noting that two important branches of the subject are worthy of closer attention than they commonly receive. The first and most important is urethral asepsis. A urethra which is about to be incised should be made sterile, if this is

possible, and the urine of such a patient should always be sterilized at least twenty-four hours before the operation, and should be kept sterile during the time of treatment. We recognize the fact that the so-called "urethral fever" is a form of septic infection. The administration of twenty drops of a mixture of one drachm of salol and two drachms of oil of gaultheria, three or four times a day, will sterilize the urine within twenty-four hours. It is also claimed that the administration of boracic acid, five grains four or five times a day, will effect the same result, but the author has used the first formula with such satisfaction that he has never tried the boracic acid. We are indebted to the late Prof. R. Palmer of Louisville, Ky., for popularizing this important point in treatment. In addition to this the urethra should be irrigated with permanganate of potash (1:3000) for five minutes before the operation, or it should be thoroughly "ballooned" with this antiseptic solution by using the ordinary conical syringe introduced at the meatus, and the canal thoroughly distended with the fluid. This should be repeated three or four times, and a sufficient pressure employed to overcome the resistance of the cut-off muscle, in this way reaching the entire canal.

The second point is the question of anesthesia. The vast majority of all strictures of the urethra can be treated practically without pain with cocaine anesthesia. From the meatus to the cut-off muscle the urethra can be anesthetized by using from one to three drachms of a two- or four-per-cent. solution. The writer gives varying quantities and strengths of solution, because no given prescription would fit every case. It is his rule to study carefully the susceptibility of every new patient to this agent, and disregard of this rule has given the unfortunate results that now and then find their way into the journals. When the entire urethra is injected, one drachm of a two-per-cent. solution should first be employed, and the degree of the susceptibility of the patient, as well as the anesthetic effect produced, can be ascertained in five or ten minutes. If the anesthesia is incomplete and the patient shows no susceptibility to the drug, another drachm of the same or a stronger solution may be injected. It is also very important to remember that a patient is much more susceptible to the absorption of cocaine when it is employed for the introduction of sounds for the first few times after than at the time of the operation, for the simple reason that an incision more

or less extensive has been made, which incision is covered with granulation tissue, rich in capillaries and ready and capable of absorbing under pressure a considerable quantity of cocaine. Anesthesia of the membranous portion of the urethra may be obtained by carrying the Keyes-Ultzman syringe point down to the cut-off muscle, pushing it slightly within, and injecting ten to fifteen minims of a four-per-cent. solution. Anesthesia beyond the cut-off muscle is practically impossible, for the reason that the urine is in contact with this portion of the urethra and so dilutes the cocaine as to make it practically inefficacious. In meatotomy a few crystals applied just within the meatus, or ten minims of a six-per-cent. solution injected, limiting the application by digital closure of the canal one inch behind the opening, will effect complete anesthesia in division of the meatus or of an organic stricture here.—*Journal of the American Medical Association*, March 20, 1897.

#### BONES FRACTURED BY MUSCULAR ACTION.

Dr. C. J. EDGAR, in the *Montreal Medical Journal*, reports an interesting and unusual case of fracture of the scapula by muscular action alone. A man aged about forty-five, tall, spare but muscular, was driving a heavily laden team down a somewhat steep incline and walking beside the load, when part of the harness broke, and to prevent the wagon running upon the horses he caught hold of one wheel by the spokes with both hands. The impetus, however, was too great, and he was gradually forced over and down upon one knee. As his knee touched the ground he felt something give way in his left shoulder, and lost his hold. On rising to his feet he found the arm powerless and very painful, the pain being referred to the shoulder joint, which he thought to be dislocated. On manipulation of the scapula it was found that the entire inferior angle was torn away and separated from the rest of the bone by half or three-quarters of an inch. Firm union was secured in seven weeks, leaving however a very marked ridge of callus over the seat of fracture. Motion was perfect, and the arm regained all its former usefulness. A case has been recently reported from San Francisco, in which the pitcher of a baseball club fractured his humerus in three places by the effort he put forth in throwing a line ball from third to first base. And within ten days thereafter another similar case occurred at

the same place, the fluoroscope showing a double fracture of the bone.—*Medical News*, March 20, 1897.

#### LEFT TRAUMATIC SUBCLAVIO-AXILLARY ANEURISM CURED BY LIGATURE OF THE THIRD PORTION OF THE SUBCLAVIAN ARTERY.

HEUSTON, in the *British Medical Journal* of March 20, 1897, reports the following interesting case:

A. N., a pensioner aged fifty years, was placed under the writer's care at the Adelaide Hospital by Surgeon-Major F. A. B. Daly. He had served in the army for twenty-one years, during eighteen of which he was in the band as a clarinet player, and was discharged from the service in July, 1887, in good health. In the summer of 1892 a heavy board fell on his left shoulder, and although he had no pain until May, 1895, he attributes his affection to this accident. In November, 1895, he consulted Surgeon-Major Daly for pain in the left shoulder, clavicular and scapular regions. The superficial veins over the left clavicle were slightly enlarged, and a slight difference was noticed in the radial pulses, but no bruit could be obtained. Aneurism being suspected, he was given large doses of potassium iodide, and his diet was regulated. This treatment gave such relief that he resumed his work as night porter at the United Service Club.

In January, 1896, the pain in the shoulder and back returned with increased violence, and at times shot down the left arm and to the region of the diaphragm. He was then admitted to a civil hospital in this city, but was soon discharged without relief, his case not being recognized. He then again consulted Surgeon-Major Daly, who found his symptoms to be much better marked than when he saw him before, and that a well-marked tumor had developed in the left posterior inferior triangle of his neck.

The patient was admitted to the Adelaide Hospital under the writer's charge on February 26, 1896. He is a well-built, healthy-looking man, and stated he had a severe continuous pain in his left shoulder and back, in the region of the scapula. This pain was relieved by placing his arm over his head. The left arm was greatly swollen and edematous, its superficial veins were markedly distended and tortuous, the left clavicle was raised, and the supra- and infra-clavicular depressions obliterated owing to a tumor which occupied the



subclavian triangle and the axilla as far as the lower border of the pectoralis minor. This tumor had a distensible pulsation, and well marked bruit and thrill. There was marked difference between the right and left radial pulse, and visible pulsation of the carotid and brachial arteries.

Ligature of the subclavian artery being decided on, the usual transverse incision for exposing the third portion was made, and the artery exposed as it passed from beneath the scalenus muscle. It was of normal appearance, but its sheath was very adherent. A strong catgut ligature was passed round the vessel and tied, the ends of the ligature being removed; the deep structures were united by hidden catgut sutures, and the skin by silkworm. The wound was dressed with zinc sulphite gauze, and the arm swathed in cotton-wool.

The subsequent progress requires little note. The wound healed by first intention, although a stitch abscess occurred at the site of the most anterior skin suture. Pulsation returned in the radial artery on the eighth day after operation, and the patient left hospital on the twenty-third day to resume his duties at the United Service Club.

The patient was shown at the Surgical Section of the Royal Academy of Medicine in Ireland on May 1, two months after operation. Since leaving hospital he had been engaged at his usual work as night porter. The left radial pulse was small, but the artery was of good tension. The tumor had lessened considerably in size, and had no pulsation or bruit. All the other symptoms had disappeared. Eleven months have now elapsed since operation, and the patient continues in perfect health.

On referring to Edmond Souchon's article on Aneurisms of the Subclavian Arteries in the *Annals of Surgery* for November and December, 1895, it will be found that out of 120 aneurisms of the third portion of the artery, thirty-five implicated that of the left and eighty-five that of the right side, and that of thirty-one traumatic aneurisms operated on by proximal ligature nineteen recovered (about sixty-six per cent.), four of these being on the right and fifteen on the left side.

#### TARDY TRAUMATIC STRICTURES OF THE URETHRA.

Professor BAZY describes a case and quotes one other on record, in which the symptoms of stricture were preceded by fracture of the

pubis forty and fifteen years previously. As the retention of urine was not complete the idea of prostatism was rendered less probable, and in exploring the urethra the bulb could not be felt through the rectum. He considers this fact a valuable means to differentiate spasm of the membranous portion from stricture located in the remotest part of the perineum, and thus close to the membranous portion. In his case the bladder was two finger-breadths above the umbilicus, prominent and painful. With a No. 23 blade he sectioned the stricture, which seemed as hard as any gonorrheal or other premembranous stricture, and the section was absolutely bloodless. Evidently a slow process of sclerosis had terminated in the production of a stricture. The treatment was successful.—*Journal of the American Medical Association*, March 10, 1897.

#### PREVENTION OF HEMORRHAGE IN OPERATIONS ON THE LIVER.

A couple of Russian surgeons, Kousnetzoff and Pensky, have been experimenting with a view to finding a process that would enable the liver to be resected without danger of hemorrhage. They now announce in the December *Revue de Chirurgie* that they have succeeded experimentally and in attempts on cadavers, and prophesy that ablation of large tumors and resection of part of the hepatic parenchyma will soon enter into current surgical practice. They find that ligature of the mass of the liver, slowly and firmly drawn tight, closes the lumen of the vessels and thus prevents hemorrhage. After chloroform the peritoneum is opened and the lobe of the liver drawn out through the wound. A row of ligatures is then made through the liver with a blunt needle and a double silk thread, the entire length of the piece to be removed. A sharp needle would injure the vessels and possibly produce hemorrhage. The needle is pushed into the mass of the liver and drawn out the other side. It is thus passed through the substance of the liver several times, a few centimeters apart. The holes made by the needles each contain therefore two threads, the ends extending out above and below. The nearest threads in the different holes are then tied together; one thread in a hole thus acts on the hepatic substance to the right of the hole, and the other to the left. When these ligatures are drawn tight, the piece to be resected in front or back of them is removed. If the ligatures have not been

drawn tight enough some vessels will bleed, when they must be separated and pulled up out of the parenchyma with a pair of Pean forceps and tied with a silk thread, or the surrounding tissue compressed with an intervening ligature. Compresses of gauze should be applied to control hemorrhage of the parenchyma. In secondary hemorrhage the bleeding surface may be thermo-cauterized after the row of ligatures has been made, but this is unsatisfactory and usually the vessels have to be tied finally. But hemorrhage rarely occurs if the ligatures through the hepatic mass have been drawn absolutely tight. After the ablation the hepatic stump is sutured to the end of the abdominal wound, or the great omentum can be sutured to the cut surface of the liver, or the stump can be put back into the abdominal cavity and the walls closed with a suture in three stages, after dressing with collodion gauze. This means of hemostasis is almost invariably successful; it can be supplemented by suturing the edges of the wound in the liver together, after interposing a gauze tampon, leaving the end of the tampon protruding from the cutaneous wound, and removing it in a few days in one or two sittings. Mikulicz has treated a case of syphiloma of the liver in this way with great success. Experience on the cadaver shows that the most convenient cutaneous incision is parallel to the arch of the false ribs, one or two finger-breadths below, ten to fifteen centimeters in length, starting at the right parasternal line for the right lobe, and at the median line, swerving to the left, for the left lobe.—*Journal of the American Medical Association*, March 20, 1897.

#### MASSAGE IN THE TREATMENT OF FRACTURES.

WOOLSEY (*Medical News*, March 20, 1897) concludes an article with the above heading with the following summary:

1. The treatment of such fractures, especially those near joints, by immobilization, whether ambulatory or not, leaves something to be desired in (a) the time required and (b) the functional result obtained.
2. The treatment of such fractures by massage and passive motion shortens the time of bony union by one-third or one-half, and vastly improves the immediate functional result.
3. This treatment is especially applicable and important in fractures near joints.
4. Its application is easy. It relieves pain

and swelling, hastens callus formation and solidification, prevents atrophy of the muscles and stiffness of the joints and tendons.

5. Splints should be applied between the daily fifteen- or twenty-minute applications of massage for the first ten or twenty days, according to the nature of the fracture and the tendency to displacement, or until consolidation occurs.

6. This treatment, combined with the ambulatory method, promises an ideal method.

7. Oblique fractures of both or the only bone in a limb, or fracture near the middle of the limb with a tendency to displacement, should be immobilized until consolidation has commenced.

8. The ambulatory treatment is indicated in the latter classes of fractures, in fractures of the lower extremity in the alcoholic or very aged, and in fractures of the neck of the femur in the aged.

9. The plan of immobilizing the limb for a short time in the best possible position, and then applying massage and passive motion, promises equally good results, and especially adapts the method to private practice, in which it is particularly indicated on account of the shortened time required for union and the excellent functional results.

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### Reviews.

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A SYSTEM OF MEDICINE BY MANY WRITERS. Edited by Thomas Clifford Allbutt, M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge. Volume II.  
New York and London: The Macmillan Company, 1897.

The second volume of this very notable encyclopedic work on Medicine, contributed to a very large extent by subjects of Her Majesty the Queen, is a fitting summary of English medical knowledge in her Jubilee year.

The present volume deals first with infective diseases of chronic course such as tuberculosis, leprosy, and actinomycosis. The first article, upon Tuberculosis, is an unusually short one for such an exhaustive work, covering only thirty-seven pages. Certainly one might expect a more diffuse and complete study of this disease in a volume of this character. The article is written by Dr. Sidney Martin, and considering its brevity is quite good. We are disappointed to find that less than eight lines are devoted to the treatment of tuberculosis, although it is only fair to state that the local treatment of tuberculosis by medic-

inal or surgical measures is considered elsewhere in this System. To us this article is perhaps the most disappointing that we have met with in the series. The second article by Dr. Abraham upon Actinomycosis is longer than that of Dr. Martin upon Tuberculosis, covering forty pages, and is completed by a useful and selected bibliography concerning this interesting disease. As an evidence of the unevenness of articles written by numerous contributors to one volume we may call attention to the fact that while two pages and a fraction are devoted by Dr. Abraham to the bibliography of actinomycosis only nine lines are given by Dr. Sidney Martin to the bibliography of tuberculosis. After considering the Infective Diseases of Chronic Course, we next come to the rather curious subdivision of Diseases of Uncertain Bacteriology. Under this classification is first considered the diseases which are endemic, and in this list is included measles, rubella, scarlet fever, chicken-pox, smallpox, mumps, whooping-cough, constitutional syphilis, and "the coincidence of infectious diseases." All of these articles are good, but we fail to find anything in them which is particularly worthy of note. In the second section of this subdivision are included the topical or endemic diseases of uncertain bacteriology. This chapter opens with an article by Sir Joseph Fayrer on the Climate and Some of the Fevers of India. It is followed by articles upon Yellow Fever, Typhus Fever, Dengue, Dysentery, Beriberi, Malta Fever, Epidemic Dropsy, Sleeping Sickness, Oriental Sore, Verruga and Framboesia.

The next section of the book is upon Infectious Diseases Communicable from Animals to Man, and in this is first considered Glanders or Farcy and then Anthrax. These two conditions are classed under the heading of "Certain Bacteriology," while Vaccinia, Foot and Mouth Disease, Rabies, and Glandular Fever are classified under the head of "Uncertain Bacteriology."

We fail to find in the text any reason for putting "Glandular Fever" under the head of "Infectious Diseases Communicable from Animals to Man." The articles upon Diseases Due to Protozoa are devoted to Malarial Fever, Hemoglobinuric Fever and Amœbic Dysentery; and in these chapters for the first time do we find American contributors, Dr. Osler writing the article upon Malarial Fever, and Dr. Lafleur, formerly of Baltimore and now of Montreal, contributing that upon Amœbic Dysentery. Both of these gentle-

men are well known for their original work upon these diseases, and the articles which they have written are of greater value than most of the others which the book contains. We think it unfortunate that in the article upon Dysentery by Andrew Davidson more frequent reference is not made to that of Dr. Lafleur upon Amœbic Dysentery.

We are glad to notice in the article upon Hemoglobinuric Fever that the author, Dr. Copeman, emphasizes the view that it is usually malarial in origin, and seems to side with those who believe that quinine is a harmful remedy during the attack.

The closing pages of the volume are devoted to the Intoxications, Animal, Vegetable, and Metallic; the Internal Parasites; and in an Addenda, in order that the volume may be up to the very latest information obtainable, we find additional statements concerning the serum diagnosis of typhoid fever, a supplement to the article on the Plague, and an addendum on Yellow Fever.

The volume closes with an index of authorities in which we are glad to see that the authors have frequently referred to American investigators, and with a short but closely printed index of subjects which is sufficiently exhaustive to afford us a good guide in turning to different portions of the book for information.

This second volume fully maintains the reputation obtained for this System by its predecessor and by the special volume on Gynecology belonging to this System, which have already been issued. Some delay has occurred in the publication of Volume II, which we are told is due to the late appearance of the report of the British Committee on Vaccination, the important work of which could not be ignored in the preparation of a volume such as that before us.

LIPPINCOTT'S MEDICAL DICTIONARY. A Complete Vocabulary of the Terms Used in Medicine and the Allied Sciences. Prepared on the basis of Thomas's Complete Medical Dictionary. By Ryland W. Greene, A.B. With the Editorial Collaboration of John Ashurst, Jr., M.D., LL.D., George A. Piersol, M.D., and Joseph P. Remington, Ph.M., F.C.S.

Philadelphia and London: The J. B. Lippincott Company, 1897.

Members of the medical and allied professions have certainly been provided with dictionaries to a most generous degree by the medical publishers of the United States within the last five years. The older and more familiar works have been revised until their pages contain, or try to contain, the latest definitions and other matters

of interest for which one would look in such a work of reference, and in addition to these revisions new and most valuable encyclopedic dictionaries have been prepared and published, all of which have been noticed from time to time in the review pages of the *GAZETTE*. One of the best of the dictionaries which have appeared within recent years was that of Dr. Thomas, which was more exhaustive than any dictionary of its time, save perhaps that of Dunglison; but the publication of new works soon caused this well known encyclopedia to be displaced, and we presume it is for this reason that the publishers have called to their aid such well known literary workers as the gentlemen who are named upon the title-page of this new edition. It is pointed out in the preface that a modern dictionary should invite, not repel, consultation, and therefore one's curiosity is roused to discover whether in the recognition of this fact the collaborators who have prepared this edition have made it attractive to the bibliophile. A careful examination of it seems to indicate that they have been successful, for the pages are broad, the type is of good size, and the words themselves are in black-faced types which are readily seen at a glance as they stand out in bold relief from the descriptive text. In the case of Latin words the English pronunciation has been given precedence as having the overwhelming weight of evidence in its favor; but in many cases, for the sake of emphasizing the increasing use of the Roman pronunciation, the latter has been given also after the English pronunciation, and is distinguished from the latter by the letter "L."

The collaborators' work was divided in such a way that Dr. Ashhurst undertook the branches of surgery and general medicine and gave special attention to the linguistic and literary portions of the volume, especially the etymology, pronunciation, and terminology. Dr. Piersol undertook the work in the parts of anatomy, histology, and embryology; while Professor Remington took charge of the important branches of pharmacy, materia medica, and chemistry.

The fact that Mr. Joseph McCreery read the proof of this volume is a guarantee that it is free from typographical and other blunders which the best of printing offices are sometimes guilty of making. We doubt whether it is correct to state that gaultheria is a stimulant and astringent; so far as we know its physiological action is identical

with that of salicylic acid, which does not possess these properties, and we think it would have been better to have emphasized the use of its oil in the treatment of rheumatism rather than to have mentioned its employment in chronic diarrhea.

When asked recently by a practitioner of medicine for advice as to the best dictionary for him to purchase, the writer of this review was at a loss to recommend any particular work in view of the equal value of a number of those at present on the market. We cannot say that this is the best dictionary that we have ever seen, but to those who wish to purchase a large and complete book of this character we can state that they will not make a mistake if they send for this work, which we can as cordially recommend as any dictionary in the English language.

**DISEASES OF THE EYE AND OPHTHALMOSCOPY.** A Hand-book for Physicians and Students. By Dr. A. Eugene Fick. Authorized Translation by Albert B. Hale, A.B., M.D. With a Glossary and 158 Illustrations.

Philadelphia: P. Blakiston, Son & Co., 1896.

The author's endeavor has been to produce a "compactly written book," suited to the needs of students and physicians who stand in awe of exhaustive treatises on ophthalmology. This is a commendable but difficult task, and Dr. Fick, in the reviewer's opinion, has not always successfully grappled with the law of just proportion. Three pages devoted to a description of A. Fick's tonometer, and less than two pages to the treatment of trachoma, indicate faulty judgment with reference to the relative value of the subject matter. Certain sections of the book are inadequate, notably those devoted to errors of refraction and to the management of trichiasis and entropion. Indeed, in general terms it may be said that the author has been much hampered by his desire to maintain brevity of description when he deals with operative procedures.

The advantages of the simple extraction of cataract are recognized, but Dr. Fick prefers the combined operation. Mules's operation is mentioned, but is not commended. Iridectomy is performed after iritis "if the adhesions are so plentiful or so extensive as to threaten a total synechia during any future relapse." Large sounds in the treatment of lachrymal disease are condemned, and the actual cautery is rarely employed in the management of severe corneal ulcer.

The sentence "In blenorrhoea of the newborn the disease, as a rule, runs its course

without attacking the cornea" is misleading. While it is true that under the guidance of competent medical advice, if the eye is seen while the cornea is still clear, except in those examples which assume a malignant type, the case should be brought to a successful termination, the prognosis is always grave and the assiduous attention of nurse and doctor is urgently demanded to save the eye from destruction. Ice poultices in this disease are considered "superfluous, if not harmful." If "ice poultices" mean properly applied iced compresses, the reviewer heartily disagrees with the author, and believes his advice is not only "superfluous," but "harmful."

While there are many excellent points in this book, while it reflects in a certain sense modern ophthalmology and particularly the views of its author, and while it may be read with profit by all students of ophthalmic science, it will not replace the many valuable American and English text-books on the same subject.

Dr. Hale's work has been well performed, and we think he has most wisely endeavored "to convey in English the exact idea expressed by the German." When the book reaches a second edition we trust he will assume a new function, viz. that of editor, and supply the subject matter which is required to render this a more acceptable book for American readers.

The book is well and clearly printed. The illustrations, 158 in number, some of which are colored, are mostly borrowed. Many of them are excellent; others are of indifferent value.

ENCYCLOPÆDIE DER THERAPIE. Herausgegeben von Oscar Liebreich unter Mitwirkung von Martin Mendelsohn und Arthur Wurzburg. Zweiter Band. I. Abtheilung.

Berlin: August Hirschwald, 1897.

During the last two years we have had occasion to review from time to time as they have appeared in medical literature the earlier fasciculi of this very valuable encyclopedia by Professor Liebreich and his well known colleagues. The present fasciculus is the first part of Volume II. It extends from "Diaphoretica" to "Flaschbouillon" and is compiled by the various collaborators that Professor Liebreich has associated with himself in this literary enterprise. As we have pointed out in previous reviews, this encyclopedia cannot be considered as being devoted solely to therapeutics, as it wanders far afield and studies etiology and pathology and many other matters which are of a great deal of in-

terest to the general practitioner but cannot be considered as being distinctly therapeutic. Considering the wide range of therapeutics as it exists to-day we are rather surprised that so much matter out of ordinary lines is included. These comments, however, are not made in the light of criticism; they are simply due to our amazement at the never ceasing industry of Professor Liebreich. We hope that future fasciculi may appear more rapidly than have the last five.

Upon the completion of the volumes *in toto* the medical profession will be presented with a very valuable compendium of medical information.

HYSTERIA AND CERTAIN ALLIED CONDITIONS: THEIR NATURE AND TREATMENT, WITH SPECIAL REFERENCE TO THE APPLICATION OF THE REST-CURE, MASSAGE, AND ELECTRO-THERAPY. By George M. Preston, M.D. Illustrated.

Philadelphia: P. Blakiston, Son & Co., 1897.

The author of this book in his preface makes an apology for his publication, which we think is always a mistake. After reading it we are somewhat at a loss to know why it was thought necessary to place upon the market a separate volume devoted to the consideration of such a disease as hysteria, accounts of which can be found in most good text-books on the Practice of Medicine and Nervous Diseases.

An examination of the Table of Contents shows that the first chapter is devoted to the consideration of the History of Hysteria; the second to the Nature of Hysteria, its Etiology and Pathology; the third to its Symptomatology; and the fourth to Disturbances of Motion. Subsequent chapters are devoted to discussions on convulsive attacks, the mental condition of hysteria, visceral and vaso-motor disturbances, differential diagnosis, treatment, electro-therapy, and other various forms of treatment; while the eleventh chapter of the volume presents a dissertation upon rest-cure, hypnotism, and surgical interference in the treatment of hysteria. An index completes this comparatively short and not very exhaustive volume.

SURGERY OF THE RECTUM AND PELVIS. By Charles B. Kelsey, A.M., M.D. Illustrated.

New York: Richard Kettles & Co.

The surgeon is at once struck by the change of title in this book and its increased scope. For years Kelsey has been the authority on rectal disease and his work has been the standard on this subject. Indeed it is more thorough and practical than any similar book in any language. At first glance the

inclusion of, for instance, intestinal resection and anastomosis, salpingectomy, oophorectomy by abdominal incision, fixation of the uterus, the radical cure of hernia, operations on the male genito-urinary organs, the surgery of the ureters, and appendicitis, would seem to be foreign to the subject. In his preface, however, the author states that it is impossible to separate diseases of the rectum in practise from gynecology and genito-urinary diseases, and that he has simply followed what experience has proved to be the natural course of his own practise. It may be said that his chapters upon these topics are characterized by the same clearness of diction and soundness of judgment which have made his writings upon exclusively rectal diseases so universally acceptable.

The illustrations are profuse and admirable, and the book can be universally commended.

ATLAS AND ESSENTIALS OF GYNECOLOGY. By Dr. Oscar Schaeffer. Illustrated.  
New York: William Wood & Co., 1897.

The author states that he has written this book with the idea of giving the student and physician the material which personal clinical observation should supply. The first part is devoted to malformations and arrests of development. Next follows a section on changes of shape and position, inflammations and trophic disturbances, injuries and their sequelæ, and finally neoplasms. The book is profusely illustrated, containing sixty-four colored plates and many illustrations in the text. The number of pictures and the care with which they are described fully justifies the title of atlas; indeed the first half of the book is practically taken up entirely with pictures and their appropriate legends.

Diagnosis and treatment are briefly outlined. This work would be particularly valuable to those who are already familiar with the technique of gynecological manipulations and operations.

A PICTORIAL ATLAS OF SKIN DISEASES AND SYPHILITIC AFFECTIONS. In Photo-lithocromes from Models in the Museum of the Saint Louis Hospital, Paris. With Explanatory Woodcuts and Text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, and L. Jacquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P.  
London: The Rebman Publishing Co., Ltd. Philadelphia: W. B. Saunders. 1897.

The ninth part of this admirable series contains four colored plates representing squamous eczema; pustular scabies; disseminated lupus affecting the ears, upper extremities,

and center of the face, with tuberculous synovitis; and gummatous tuberculous lymphangitis, secondary to tuberculous dactylitis.

In addition there are a number of excellent woodcuts. The subject matter is by Jacquet, Feulard, Besnier, and Thibierge. The latter, writing upon gummatous lymphangitis, states the fact that reinfection of tuberculous subjects through the skin is now perfectly recognized, thus contrasting with syphilis, which cannot be reinoculated. In a case reported there was tuberculous dactylitis associated with gummatous lymphangitis. The lesion on the finger was only one link of a long tuberculous chain. If it was the cause of tubercular lymphangitis it was also the immediate result of the pulmonary tuberculosis by auto-inoculations of the finger with products of the expectoration.

A CLINICAL, PATHOLOGICAL AND EXPERIMENTAL STUDY OF FRACTURE OF THE LOWER END OF THE RADIUS, WITH DISPLACEMENT OF THE CARPAL FRAGMENT TOWARD THE FLEXOR OR ANTERIOR SURFACE OF THE WRIST. By John B. Roberts, A.M., M.D. Illustrated.

Philadelphia: P. Blakiston, Son & Co., 1897.

There are few surgeons who have not been familiar for years with Dr. Roberts' original but thoroughly well founded teachings on the subject of fracture of the lower end of the radius. In the present volume the author by means of woodcuts, skiagraphs, the study of specimens and experimental observations thoroughly proves his position.

As to the treatment of the injury Roberts advises after complete reduction the application of retentive dressings which will not interfere with the free use of the fingers. He urges the necessity of thorough reduction and points out that this may require great force. He states that the surgeon "should grasp the metacarpus of the patient with one hand and the lower part of the forearm with the other. This should be done with the patient's hand in the supine position. The thumb of the surgeon's hand which holds the metacarpus should be placed on the palmar surface of the carpal fragment of the radius as it lies just behind the thenar eminence. Extension and counter-extension are to be made for a moment; the hand should then be suddenly bent backward in strong dorsal flexion, and at the same instant the surgeon's thumb should push the lower fragment backward into place. This can be done in a moment and will not require anesthesia. It will be exceedingly painful, but is so quickly done

that as a rule etherization is unnecessary. If sufficient force is applied the fragments will be driven into place at once with a coarse grating sensation. Occasionally a repetition of the manipulation may be needed to obtain perfect restoration of the bony contour.

"This manipulation is the same that I use in reducing the fracture with dorsal displacement, but is applied to the palmar surface instead of to the dorsal.

"In fractures which have been left unreduced for several weeks more power will be required, because the reduction then becomes a refracture. Here it may be necessary to bend the united bone across the surgeon's knee, which is applied to the front of the forearm at the level of the fracture. After the fragments have been broken apart by extension and counter-extension, and a cross-breaking strain over the knee applied to the palmar surface so as to tend to increase the displacement, coaptation is to be accomplished by the manipulation just given for the reduction of recent fractures."

THE EYE AS AN AID IN GENERAL DIAGNOSIS. A Handbook for the Use of Students and General Practitioners. By E. H. Linnell, M.D.  
Philadelphia: The Edwards and Docker Company, 1897.

This book, as the preface expressly states, makes no attempt to describe the symptomatology or differential diagnosis of the various ocular affections which the author describes as indicative of general disease, nor is there any attempt to give the treatment of such affections. The book is divided into three parts. In the first of these we find a brief description of affections of the eyelids, conjunctiva, orbit, sclera, cornea, external ocular muscles, lens, iris, and fundus, which are likely to direct the attention of the physicians to general diagnostic and etiological considerations. Chapter V contains a description of the field of vision and a consideration of some of the visual disorders of intracranial origin. This section of the book concludes with a tabulated statement of general diseases, with more or less characteristic eye symptoms.

The second part of the book deals especially with the so-called reflex neuroses and the relation of ocular affections to functional nervous diseases.

In the third part the toxic amblyopias and the amblyopias caused by various therapeutic agents and poisonous substances are discussed.

The book is similar in its plan to Knies's

well-known work, which, as we learn from the preface, has been fully and freely utilized, although the author's own treatise was in part completed before he had access to the German book on the same subject. It has evidently been Dr. Linnell's intention to avoid technicalities and to make the book acceptable to the general practitioner. The result is a somewhat superficial but fairly interesting *résumé* of the subject.

There are very few illustrations; two of them, showing reversal of the color lines in hysteria, are good. The author has badly mixed the cuts which he has selected from de Schweinitz's "Toxic Amblyopias," four of which appear on page 197. The legends are exactly reversed, so that the fields which represent tobacco amblyopia are described as fields with absolute central scotomas; while those which are the visual fields not of tobacco amblyopia, but of progressive scotomatous atrophy, are given in illustration of the former affection.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P.  
LOND.

Dr. Carr has made a valuable contribution to our knowledge of Non-tubercular Posterior Basic Meningitis in Infants in a paper to the Royal Medico-Chirurgical Society. His observations are based on eleven cases, all of which had come to an autopsy. It will be remembered that Drs. Gee and Barlow previously drew attention to the condition in 1878 in a paper in the St. Bartholomew's Hospital Reports entitled "The Cervical Opisthotonos of Infants," and a further treatise is shortly expected from the joint authorship of Drs. Barlow and Lees. Carr believes the disease to be as common in infants under one year of age as the tubercular form, but very rare above that age. Of the clinical symptoms in his cases, head-retraction was not merely an early symptom but marked and persistent throughout, and of a far more extreme character than is usual in tubercular meningitis. He remarks on the rare occurrence of general convulsions or marked rigidity of the limbs, and ascribes this to the limitation of the disease to the base of the brain. Barlow and Lees, however, have noted the almost constant existence of rigidity of the limbs and usually in

state of extensor spasm. The early appearance and long persistence before death of the state of stupor and semi-coma, due to the increased intracranial pressure as evidenced by the bulging fontanelle, was another point of distinction from the tubercular form, in which the advent of this condition ushers in the end. Carr speaks of the respiration as irregular, sighing, or markedly Cheyne-Stokes in character, while Lees describes it as "cyclical"—*i.e.*, a pause followed by two or three deep sighing respirations. There was no marked irregularity or slowing of the pulse such as is so often seen in tubercular meningitis, and Lees ascribes this latter feature to the vagus not yet having developed its inhibitory power. Vomiting, like head-retraction, was an early symptom and prominent throughout. Squint and nystagmus were occasional, but in nearly all the cases optic neuritis was absent, and this even when the intracranial tension was most excessive. Death was usually by inanition from the vomiting and difficulty in taking food, which in most cases had to be given for prolonged periods by the nasal tube. In the majority of cases death was in from five to eight weeks, but the course sometimes extended over many months, and in some cases seemed to subside into chronic hydrocephalus. There was a great similarity of the post-mortem appearances in all the cases: the essential feature was an inflammatory state of the meninges, not always circumscribed but always most marked at the posterior part of the brain, and leading on to cicatricial adhesions. The thickenings and adhesions in the Sylvian fissure that are usually so marked in tubercular meningitis were generally absent, and when present very slightly marked. In all the cases the lateral and third ventricles and usually the fourth were distended with fluid leading to varying degrees of atrophy of the convolutions. Examination of the thickened membrane at the base of the brain and of the fluid in the ventricles pointed to the absence of tubercle. Carr was disposed to look upon the effusion as dropsical from venous obstruction, with perhaps in some cases an additional inflammatory element, but Lees in the discussion on the paper showed pretty clearly that the fluid was cerebro-spinal, and due to some obstruction in the channels leading from the ventricles, where the fluid was secreted by the choroid plexuses, to the subarachnoid space. Barlow mentioned several cases in which he had found such blockings either at the foramina of Majendie or Monroe, or even

in the spinal meninges at the level of the first and second cervical vertebrae. The question of treatment by drugs is of course closely bound up with the etiology of the disease, while operative procedure must necessarily be based on the post-mortem findings. Carr thinks that injury may in some cases be a predisposing cause, but does not attach much importance to ear disease or to congenital syphilis in its causation. He prefers to look on posterior basic meningitis as a definite disease with a definite—perhaps specific—cause, and draws some analogies with epidemic cerebro-spinal meningitis, which is almost certainly due to a micro-organism. Barlow is also disposed to disregard syphilis, but both he and Lees had frequently noticed a history of catarrh preceding the acute symptoms, and perhaps their starting point. Barlow suggested the middle ear as an intermediary between the fauces and meninges, and mentioned the muco-pus in the middle ear as a convenient nidus for the growth of organisms; he was himself familiar with several cases in which the symptoms appeared to indicate the commencement of posterior meningitis, and which were at once relieved by puncture of the tympanic membrane. Carr considers that the prime aim in treatment should be to subdue the inflammation by counter-irritation, such as mercurial inunction of the throat and neck, an ice-bag to the head, and calomel. Barlow had also found benefit at times from the use of mercurial ointment. No special benefit had accrued either from bromides or iodides. Carr advises puncture of the ventricles when there is great distention, so that if the child does recover, he may recover with a useful brain. This should be slowly drained away through a small trocar and cannula. The danger of operation lies in the too rapid removal of the fluid, as when free exit is given to the fluid the skull is liable to collapse, with fatal results. Barlow had invoked the aid of the surgeon in one case for tapping the fourth ventricle, but though the symptoms are sometimes temporarily relieved there was never any permanent benefit.

The great battle over the University degrees for women has been fought out at Cambridge, and the concession has been refused by a majority of nearly three to one in a very full house. Last year the whole question was referred to a syndicate with a view to effecting some permanent settlement. Shortly stated the position of women students at Cambridge is as follows: They are resident



in colleges of their own in the same sense as male students reside in their colleges within the precincts of the University, and attend the lectures of the University teachers. After conforming to the same laws of residence and educational requirements as the men, they are admitted to the honors examinations of the University. Those who obtain honors are presented with a certificate stating the class in which they were placed, but do not receive any degree. The grievance alleged is that in the judgment of the public the certificate is of inferior value to the degree, and that consequently they are at a disadvantage in competition with graduates of other universities: for this reason they ask to be hall-marked with the magic symbol B.A. The syndicate recommended this concession, at the same time expressly stipulating that the degree should be a mere titular distinction and should carry with it no share in the management of the affairs of the University. On this point the issue was decided, and graduate and non-graduate, resident and non-resident, have risen in holy horror against such a subversion of the existing state of things. We ourselves heartily welcome the result, not because we think that the women have asked too much, but we rather condemn them for asking too little. In very reasonableness the same measure should be meted out, regardless of sex, to two students who have conformed to the same conditions of residence, education, and examination; and on this ground we would decline the compromise which the agitators declared themselves ready to accept as final. The University, however, were alive to the fact that the very illogicality of a degree without a share in the affairs of the University would be a strong vantage ground from which at some future date the male citadel would assuredly be stormed by a generation of agitators under no pledge of peace. The University has been rudely awakened from its dreamy credulity in the singleness of intellectual purpose with which the women students were content to gather up the crumbs that fell from the academic table, to find that after all it had cherished a serpent in its bosom, ready to prey on its very vitals by seizing a share in the management of affairs. Whether the invasion was premature, or whether it failed from tactical maladroitness, the fact remains that women are now further than before from equal rights with men in the University. What is to be the outcome? The women, true to tradition, will not admit their defeat, and are quietly biding their

time against a more favorable season. Some of their male allies meantime are seeking a less remote solution in the formation of a special university for women, under the management of women. This must needs be a costly undertaking even if the university should grow out of some existing institution, and it must needs be many years before such a university could provide the same attractions and facilities as are ready to hand in our old-established universities. We have no belief in the essential mental distinction of the two sexes, and so far from believing it necessary to establish a fresh university to meet their educational requirements, we do not deem it necessary to modify in any way the lines of education as at present laid down.

The medical superintendents of the hospitals of the Metropolitan Asylum's Board have issued a second report on the treatment of diphtheria with antitoxic serum. The report deals with cases belonging to the year 1896, and on the whole confirms the good opinion they had previously formed of the treatment. It cannot be urged against this conclusion that the hospitals have during this period dealt with a milder type of diphtheria, for in those hospitals where the serum treatment has either not been used at all or only in a comparatively small number of cases the percentage of mortality has actually increased. The conclusions which the medical superintendents have arrived at are: (1) that a great reduction has been brought about in the mortality of cases that have come under treatment during the first three days of illness; (2) that the combined general mortality has been reduced below the level attained in any previous year; (3) that the reduction has been most remarkable in the mortality of the laryngeal cases; (4) that there has been a uniform improvement in the results of tracheotomy at each hospital; and (5) that the clinical course of the disease has been beneficially affected.

The Prince of Wales' Hospital Fund has already attained a considerable measure of success, as a sum has been subscribed that will ensure an annual income of not less than twenty thousand pounds, and to this may be safely added a further capital sum of fifty thousand pounds, which should result from the sale of the special Jubilee stamp. In our opinion the difficulties will only commence when the sum has been collected; and it has not yet been shown how far this additional fund will diminish the current income of the hospitals. Who is to have the distribution of

the money? This is a question that is sorely vexing the Charity Organization Society, who have decided to memorialize the Prince of Wales with a view to the formation of a Central Hospital Board with the power of the purse. We are not at all clear that this particular duty would be more satisfactorily discharged by such a body than it has been by the existing governing committees of individual hospitals. This is the view taken by the governors themselves, who for their part have entered a counter-protest against the formation of any outside Board of Control, and ask for the disposition of the fund to be left to a central association of the governors of the hospitals. We are certainly of opinion that the financial management of our large hospitals needs less reform than almost any other branch of their affairs. The evil that above all things needs redress is the multiplication of special hospitals draining off valuable clinical material from the great teaching schools. For this the teaching schools have largely themselves to blame for their tardiness in equipping special departments in a way that would enable them to deal with such special cases.

We would wish to call your attention to the admirable Jubilee number of the *Practitioner*. The number is an abstract and brief chronicle of the advances made in the art of healing during the reign of Queen Victoria. A glance at the names of the contributors will show that no pains have been spared to get the best possible presentation of each subject. The opening sketch by Dr. Samuel Wilks of "Fifty Years Ago" is a fascinating prelude to a series of most instructive articles. Where all are of such high merit it is difficult to particularize, but on the whole we would award the palm to Mr. Treves for his graphic record of "The Progress of Surgery." This Jubilee number cannot fail to be of the highest interest to all who care to reflect on the giant strides with which therapeutics have advanced in the course of the last half century.

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#### PARIS LETTER.

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BY A. R. TURNER, M.D. (PARIS).

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Towards the end of 1896 Dr. Calot, surgeon in charge of the Rothschild Hospital for Tuberculous Children at Berck-sur-mer, a small seaside resort not far from Boulogne, presented to the Academy of Medicine of Paris thirty-seven young patients whom he

had treated for deformation of the spine due to Pott's disease. Dr. Calot, to use his own words, does not hesitate to treat such a case, if recent, like a tuberculous joint which has become ankylosed at a bad angle; he straightens the spine under chloroform.

The method is as follows: Two assistants hold the child over the operating-table, one at the feet, the other at the head; the patient is in a prone position. Besides the two assistants holding the head and feet, another assistant places his hands under the sternum and clavicles, and a fourth assistant under the pubis or even under the umbilical region.

The first two assistants pull strongly upon the parts which they hold, as if to lengthen out the body, and then with the aid of the third and fourth assistants carry upward the two extremities of the rachis, as if to bend it backward. Meanwhile Dr. Calot himself presses with great vigor upon the angular curvature, until the vertebræ which were displaced are level with or even below the others. The hand often perceives, and sometimes the ear, the sound produced by the separation of the two spinal segments and by the vertebræ sliding upon one another. Usually from one to two minutes is sufficient to obtain correction of the deformity.

When the reduction is complete an assistant maintains pressure on the affected region, in order to prevent recurrence, and a circular plaster bandage is placed around the body extending from the head to the pelvis, both inclusive. Dr. Levassort prefers to apply this bandage to the patient while the latter is hung up, head downwards, by the legs.

Over the region where the vertebræ projected a large quantity of cotton-wool is placed, so that the plaster dressing may be drawn tight.

From three to four months after the application of the first dressing it is removed, and the spine will be found almost or quite straight. Another dressing should then be applied, after still further straightening, if necessary. After two or three such dressings the child may be allowed to walk, but with the aid of a corset. Thus from five to ten months have been found sufficient for the correction of the deformity.

In a discussion at the Academy of Medicine on the same subject Dr. Ménard, who is surgeon to the Berck-sur-mer Hospital belonging to the city of Paris, stated that he had three times practised the operation post-mortem in order to examine what were the

anatomical changes produced by it. In two of the cases the deformity was in the dorsal region; in the third in the lumbar region. The spinal cord and the meningeal membranes were not affected by the operation.

In one case an abscess situated in front of the spinal column was torn open, and its contents were thus placed directly in contact with the posterior mediastinum and pleura.

A large opening was caused by the operation in the anterior portion of the spinal column, due to the separation of the two segments of the spine. This opening measured in one case at least eight centimeters in height. It contained remnants of caseous matter, of sequestra, and tuberculous granulations.

Dr. Ménard said that inasmuch as tuberculosis destroyed the bodies of the vertebrae and did not, like osteomyelitis, give rise to any hyperostosis or tendency to the formation of new bone, the vast cavity thus formed would necessarily be filled only by a fibrous cicatrix, which would not have the strength necessary to support the spine and to prevent recurrence of the deformity. Such a cicatrix would likewise be retractile on account of its fibrous nature.

In a discussion at the Society of Surgery Dr. Brun, Dr. Michaux, and Dr. Broca stated that they had all performed the operation several times, with no unfavorable results, and that they had been struck by the ease with which the straightening was obtained. Though of course the final result could not be stated, the immediate result was excellent, and the operation did not appear to be a serious one.

A French medical paper published recently a table giving the number of examinations in medicine passed at each of the seven French faculties of medicine during the school year ending in 1896, and the proportion of rejections. The greatest number of examinations was of course in Paris, amounting to 8955 examinations against 1446, the next greatest number, at Lyons. The smallest number occurred at Nancy, amounting to 406 examinations. One thousand three hundred and nineteen refusals took place in Paris, and only 99 at Lille. It is curious to note the differences between the several faculties in the relative proportion of rejections at various examinations: thus 22.7 per cent. were refused in anatomy in Paris, and 44 per cent., or almost double, in Nancy; on the other hand 14.51 per cent. were refused in Paris in therapeutics, materia medica, hygiene, legal medicine, and pharmacology, and at Nancy only

three per cent. As I have said before, the thesis must be looked upon as a mere formality, for none were refused except in Paris and Lyons—in the first case amounting to 0.33 per cent.; in the second 0.72 per cent., which means that one thesis was rejected at each of those places.

It is worth while noticing how great has been the increase in the number of students at the Faculty of Lyons and the reputation it is acquiring every day, not only as a scientific center, but as a school. Dr. Testut, Professor of Anatomy there, has been appointed editor-in-chief of a series of text-books, destined to serve the student in preparation for his examinations. This will fill a want which has long been felt. There are plenty of large works in French—enormous works, I may say—but nothing of a medium size, nothing which could be thoroughly studied during the necessarily limited time a student has at his disposal.

How frequent it is to find the favorable result of a mercurial treatment given as one of the proofs of the syphilitic nature of some lesion. This axiom, however, has lately been attacked.

At a meeting of the Société Française de Dermatologie et de Syphiligraphie Professor Fournier reported a case in which a patient had consulted him for enormous ulcers of the hand and arm, resembling in all points tuberculous lesions. Not only did the patient deny having had syphilis, but no sign of the latter could be discovered; and even more, the patient was suffering from pulmonary tuberculosis, and the cutaneous lesions dated from many years back.

In order, however, to make doubly sure, a subcutaneous injection of calomel was administered, which gave rise to stomatitis, but which also caused great improvement in the local condition of the patient. A second and a third injection were given, with so much success that only some slight thickening of the skin remained in the region where the ulcers had existed.

Dr. Fournier thought that after all the question should be asked whether calomel did not have a curative action in some varieties of tuberculosis.

In the discussion that followed Dr. Augagneur, of Lyons, spoke of seeing an eighteen-year-old boy suffering from tuberculous lesions of the legs, and who had had a toe amputated for tuberculosis which had lasted about ten years. The administration of potassium iodide caused very great improve-

ment, as it did in another patient suffering from similar lesions.

Dr. Jacquet reported a case in which a recently delivered young woman suffered first from puerperal infection, followed by acute osteomyelitis of the left thigh. The administration of Gibert's syrup caused almost immediate recovery.

Dr. Sabourand stated that the only two known cases of human glanders which had recovered had been taken for syphilis and consequently treated with mercury.

The conclusion to which Professor Fournier came was that mercury and potassium iodide are not reagents of syphilis—that is, an affection favorably affected by them is not necessarily syphilitic.

To the various diseases named above actinomycosis may be added. Only comparatively recently has the favorable influence of potassium iodide in this affection been known, and it cannot be doubted that lesions have been reported as syphilitic because cured by that drug when they were in reality due to actinomycosis.

In a recent communication to the Academy of Sciences Dr. Fouquet, of Cairo, Egypt, said that he had frequently noticed certain curious tattoo-marks on patients consulting him. These tattoo-marks were in the form of lines or dots, were situated on the most differing regions, and did not resemble in any way tattoo-marks intended for ornament.

At first he found some difficulty in ascertaining what was their object. Eventually, however, he discovered that they had been made as a mode of treatment, of revulsion, either against periostitis or chronic inflammation of some articulation or tendon-sheath. In three cases he had seen such tattoo-marks on the epigastric region as a treatment of chronic gastric disturbances; six times he had seen the temples tattooed with a large blue or black spot against chronic headache; and in other cases the knee, the wrist, or the ankles were so marked. The operation is done by women.

Inasmuch as the custom seemed to be more frequent among the Copts Dr. Fouquet was led to believe that it must be of great antiquity, dating from early Egyptian times. This was proved to be so by a curious discovery. In 1891 he examined the mummy of a priestess of Hathor, who had lived at Thebes about 5000 years ago. The mummy was that of a rather young woman, extremely emaciated, the features being drawn and contracted, and the mouth open as in suffering.

The abdomen was sunken and covered with three series of tattoo-marks and scarifications; the first series were already cicatrized.

Dr. Fouquet considered it probable that the priestess had died from an attack of peritonitis, and that the treatment of tattooing had been given for an attack of pelvic peritonitis. Thus 5000 years after death it was possible to make the diagnosis of the cause of death.

The French papers have published an amusing yet sad story of a Polish medical student. Fifty-four years ago he began the study of medicine in Warsaw; lack of means obliged him to act as tutor for twenty years; he passed his first medical examination, but in 1863 took part in the Polish insurrection of that year, and was exiled to Siberia. In 1895 he returned to Warsaw, and has just been received Doctor at the age of seventy-five years. His name is said to be Boryski.

#### *A CASE OF CINCHONISM.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: Denise R., colored, female, aged forty-five, came to my office on Wednesday, May 19, 1897, for treatment. I found her suffering with chronic cervical endometritis, and made a local application of tincture of iodine.

The patient left my office at eleven o'clock, saying that she felt perfectly well and that the pains had completely disappeared. She returned home in a carriage. Her house is one mile from town. At half-past two in the afternoon, coming back from a visit in the country, I inquired how she was, and she told me that she felt perfectly well.

At half-past eight in the evening her husband came to my office and reported that at three o'clock in the afternoon she had had a chill followed by a high fever, and that at the present time she was suffering with a painful stiffness in all the limbs. I prescribed five-grain doses of phenacetine every two hours, and after the second dose she was perfectly easy and slept all night.

Thursday morning at half-past six I visited her and found her without pain but with a temperature of 101° F. The abdominal pains were absent. Supposing that the fever was due to her having been exposed to the hot sun in the middle of the previous day, I prescribed a dose of calomel and podophyllin, a capsule containing sulphate of quinine and acetanilid of each  $3\frac{3}{4}$  grains, and arsenious acid and sulphate of strychnine of each  $\frac{1}{8}$  grain, to be taken every four hours. She

began to take the capsules the same day at ten o'clock.

At eight o'clock in the evening the husband came to me and reported that ten or fifteen minutes after taking each capsule she vomited. I gave her every hour fifteen drops of chloranodyne (P. D. & Co.) and ten grains of subnitrate of bismuth suspended in a teaspoonful of mucilage. After the second dose vomiting ceased and did not recur after taking the capsules every four hours.

Friday morning at seven o'clock I visited her and found her with a normal temperature. She told me that the calomel and podophyllin had acted well and that she was feeling well. Fearing that the fever might return I directed her to continue to take the capsules every four hours, which she did up to two o'clock. At six o'clock, the time when she ought to have taken her capsule, she became delirious and had a nervous attack, during which she bit her arm.

I was sent for, and when I reached the house I found her in the following condition: She was delirious; her limbs were trembling but not rigid; forehead was intensely warm, and when touched seemed to be very sensitive; pupils were contracted; temperature in the axilla was normal; pulse amounted to 80 and respiration to 40 per minute; urine was suppressed since nine o'clock in the morning, the time at which her bowels had moved. I introduced a female catheter and drew about a tablespoonful of a thick, high-colored liquid. Chemical analysis failed to show the presence of any abnormality. Occasionally she recovered consciousness and then complained of an excruciating pain that she located in the forehead, claimed that her sight was dizzy, and that when somebody talked or walked in the room it seemed to her as if there were heavily loaded carts driven around. This sensation was evidently due to exaggerated tinnitus aurium. She complained also of a severe itching all over the body, but examination failed to show any eruption. I applied on each temple a fly-blisters of the size of a dollar and gave her fifteen grains each of bromide of potassium and hydrate of chloral dissolved in camphor water every hour. After the second dose she went to sleep and slept until three o'clock Saturday morning.

At that time she awoke and called for a little water. After having taken a sip of it she began to vomit, and the vomiting was persistent. I was sent for and reached the house at half-past four. She was still vomiting, and I gave

her a hypodermic injection of one-fourth of a grain of morphine. Vomiting ceased at once, and she slept till twelve o'clock. When she woke up the pain in the head had disappeared, and the patient was feeling well.

Sunday morning I visited her and found her well, without fever and without pain. She reported that she did not feel any more the pain in the uterine region she experienced before the application of iodine.

According to my view of the case the patient had been suffering from cerebral congestion due to the toxic action of quinine, and as she had not taken any more of the drug than I am used to give without bad effect to all my patients having fever, I concluded that I was in presence of a case of cinchonism arising from idiosyncrasy of the patient. I inquired about her and discovered that when she was thirteen years old a certain dose of quinine the amount of which she could not determine had made her delirious for six days, and that three or four years ago a ten-grain dose of the same drug had produced the same effect for twenty-four hours. Moreover she told me that her son had the same idiosyncrasy, and that a few years ago after having taken some quinine he had had nervous attacks, delirium, and unconsciousness.

I report this case as being a curious manifestation of toxic action of therapeutical doses of quinine. In my practice I have seen cases of idiosyncrasy accompanied with urticarial eruption and cyanosis, but never with cerebral troubles as in the case which is the subject of this report.

PIERRE SILLAN, B.S., Ph.M., M.D.

ST. MARTINVILLE, LA.

#### COMPOUND COMMINUTED FRACTURE OF TIBIA AND FIBULA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: The following case is of interest as showing the results of conservative treatment in an injury commonly regarded as demanding immediate amputation:

March 2, 1897, at 1 P.M., Mr. Wm. Young, aged twenty-five, was run over by an empty "gondola" freight-car, one wheel passing over the right leg about two inches above the ankle (the flange of the wheel nearest the ankle), causing a simple fracture of the tibia about the middle of the leg and a compound comminuted fracture at the point of contact of the wheel above and the rail below. The fibula was also broken about the same place.

On first sight there seemed to be no favorable signs looking toward saving the limb, but while washing and cleansing the wounds we noticed that the circulation in the anterior tibial artery was good, also that there was some weak pulsations in the posterior tibial vessel. Some oozing of blood from an open skin wound over the tendo Achillis about four inches above the ankle seemed to indicate a rupture of blood-vessels, although not sufficient to require any active intervention. The skin was also broken over the tibia at two other places where the wheel came in contact with it.

The leg was washed with bichloride solution 1:2000, after which the wounds were dressed with iodoform gauze, were well covered with powdered iodoform, and the leg was placed in a Levis metallic splint well padded with absorbent cotton. There was no difficulty in securing and maintaining reduction, except that the upper end of the lower fragment of the tibia exhibited a tendency to forward displacement, which was very easily corrected by a spring such as is used to hold the trousers of a bicycle rider from the wheel.

After the dressing was completed Dr. Goeben and myself, after taking into consideration the good circulation, the almost perfect sense of feeling in the foot, and the ability of the patient to move his toes, concluded to state the case to the patient and let him decide as to the advisability of an attempt to save the limb. We told him that the chances of saving the limb were very small indeed, and that the risk of losing his life in the attempt was so much greater than after an amputation that we did not think it advisable. This risk he, however, consented to take. He rested well, requiring a few doses of morphine the first two or three nights; had very little fever, never over  $101^{\circ}$ ; his appetite was good, bowels regular, urine at first concentrated and feverish.

March 4, on account of oozing, the dressing was changed and an opening made in the splint over the wounds to allow of free drainage. The skin over the tibia became black and gangrenous for about two square inches, but sloughed in a week or ten days, leaving a clean, healthy-looking granulating surface which secreted very little pus and under a dry dressing of iodoform and powdered boric acid gradually healed over until at present there is only a small spot less than an inch square not healed. There is good union of the fibula, and the tibia is becoming firm, with the prospects of a good and useful limb.

The unfavorable prognosis of such cases as expressed by reporters in *Stemen's Railway Surgery* lead me to report this case, as illustrating the recuperative powers which are manifested sometimes under most unfavorable circumstances, entirely setting at naught surgical rules, and impressing the importance of individualizing cases after thorough and painstaking investigation.

There was no doubt about the car running over the leg, as two persons also saw the wheel pass over the leg.

The car weighed 19,400 pounds.

DAVID GARDNER, M.D.

LEHIGH, I. T.

#### A SIMPLE METHOD OF PRESERVING CULTURE MEDIA.

To the Editor of the THERAPEUTIC GAZETTE.

SIR: For several years I have found it very difficult to profit by the excellent advice received during my college course in bacteriology, for several reasons, the principal of which was the difficulty in obtaining culture media at the time needed. Being remote from any laboratory or source of supply for such articles, it was necessary that I should make it myself or do without. If I prepared a quantity during a quiet time in my practise the chances were that it would be dried up and unfit for use by the time I most needed it. I tried rubber caps and sealing the tubes, but these methods, like all other suggestions tried, failed to give the satisfaction sought; besides in some cases adding considerably to the expense of the preparation.

At last I tried the following method, which is so simple and proved so perfectly successful that I resolved to give it to my fellow practitioners:

During a season of the year when I can expect to have the time I prepare a quantity of tubes ready for inoculation of all the different varieties of media used. I then take ordinary glass Mason fruit-jars, put a little cotton or a cloth in the bottom, with an inch and a half or two inches of some disinfectant solution, such as carbolized water; the can is then filled with the prepared tubes and sealed with the screw-top and rubber, as in canning fruit, and set away for future use—preferably in the cellar. By this method I have always a supply of culture media on hand, ready for use at any time of the year.

Yours truly,

E. E. SIMPSON, M.D.

SCOTLAND, SOUTH DAKOTA.

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## Original Communications.

### THE CHOICE OF THE VARIOUS PREPARATIONS OF DIGITALIS.

By H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

For many years members of the medical profession have been wont to regard the various pharmaceutical preparations of digitalis as possessed of a widely different physiological effect, far exceeding the variation naturally arising from the relative strength of an infusion as compared to a tincture. In other words, it has been generally conceded that no

dose, large or small, of the infusion could be hit upon which would produce effects caused by any given dose of the tincture; or to express it still more clearly, it has been the general view that each of these preparations was capable of producing effects peculiar in some respects to itself. It has been supposed that this variation depends upon the relative proportions of the various active principles of digitalis held in solution by the water or alcohol with which the preparation is made, and if it be true that each preparation has an effect of its own it is also undoubtedly true that this is due to the reasons just suggested, as I am about to point out.

It will be recalled that digitalis contains at

least five principles, of which four are physiologically active and the fifth inactive. From these there may be developed other substances by chemical alterations or decomposition, but they probably are not primarily present. Each of these ingredients possesses a physiological action of its own, and each has a solubility of its own. Of the four active constituents, digitalin, digitoxin, and digitalein act upon the heart muscle, while digitonin has an entirely different effect, namely, the power of depressing the vagus nerves centrally and peripherally and the inhibitory ganglia in the heart. The digitalin here referred to is not the digitalin of amorphous form prepared according to the process of Homolle, nor the crystalline digitalin of Nativelle, neither of which is a pure digitalin, but it is the digitalin of Schmiedeberg.

The effect of Schmiedeberg's digitalin upon the heart is that of a powerful stimulant, for under its influence the individual heart-beats become more powerful (four to six times greater than normal) and it simultaneously causes a rise of blood pressure, first by increasing the strength of the heart, and second by stimulating the centric and peripheral vaso-motor apparatus.

The physiological effects of digitalein and digitoxin are identical with those of digitalin except that they do not stimulate the vaso-motor center, nor the pneumogastric apparatus, and so do not directly raise blood-pressure or slow the heart. In other words they increase the force of ventricular contraction. The effect of digitonin being to depress the vagus nerves, it will be seen at once that it antagonizes the vagal effect of the digitalin on these fibers and so prevents digitalis from slowing the heart to the extent that would result from the use of digitalin alone. It also depresses the heart muscle. The proportion of digitonin in digitalis varies, but it is not present in sufficient amount to entirely overcome the inhibitory influence of the digitalin.

If we now turn to a consideration of the solubilities of these principles we can readily explain the different effects produced by the infusion and tincture or fluid extract. Digitonin is soluble in water, as is digitalein, but digitalin is only slightly soluble and digitoxin is scarcely soluble in water at all. As a result the use of the infusion in a case of heart disease would not give the patient the same degree of cardiac power as the use of the tincture, for not only would the most powerful stimulant of all to the heart, vaso-motor system, and vagi be present in small

amount, but in addition the large proportion of digitonin would antidote it.

On the other hand, digitonin is sparingly soluble in alcohol, while digitalin and digitalein are readily soluble in it, digitoxin being slightly so. It would seem therefore that in the presence of a failing heart and circulation the tincture or the fluid extract are the preparations greatly to be preferred to the infusion, because they contain large amounts of the active stimulant ingredients.

The reason that the infusion acts efficiently in some cases as a diuretic probably depends upon the fact that as it does not contain so much digitalin it is less apt to cause spasm of the renal vessels, but if the heart is feeble and there is renal stasis, the tincture is probably the better preparation to overcome this state, because it both aids the heart and by contracting the renal vessels overcomes the stasis. The use of digitalin is inadvisable unless we are sure that we get that made according to the process of Schmiedeberg, for the other digitalins usually sold are very uncertain. The infusion is far more apt to disorder the stomach than the fluid extract or tincture, because of the irritating digitonin.

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#### *MASTOID EMPYEMA WITHOUT THE USUAL OBJECTIVE SYMPTOMS.\**

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BY S. MACCUEEN SMITH, M.D.,

Clinical Professor of Otolaryngology, Jefferson Medical College;  
Surgeon in Charge Ear, Throat and Nose Department, Germantown Hospital, Philadelphia.

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My object in presenting a paper on mastoid disease is not in any degree an attempt to treat the subject in an exhaustive manner, but chiefly to consider a variety of the disease not frequently encountered. Neither shall I burden you with any lengthy histories, but will briefly cite a few illustrative cases, and confine my remarks to the statement of such facts as seem necessary to elucidate the chief points of interest.

As this and other aural affections can not, from their clinical aspects, be recognized and treated strictly in accordance with prescribed rules, it would seem that a large clinical experience, together with mature judgment, and bold, yet conservative methods of treatment, will continue to characterize the future notable advances in *surgical otology*,

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\*A paper read before the Section of Laryngology, Rhinology and Otolaryngology of the American Medical Association, June, 1897.



just as similar methods have so largely contributed to the modern achievements of general surgery. It is quite true that certain well defined symptoms and appearances are commonly found in, and are somewhat diagnostic of, the usual form of mastoid disease. Nevertheless, when we consider the numerous exceptions to this rule, we are constrained to the belief that while general rules are of much value and applicable to most patients, yet their recognition and application in obscure cases is not only confusing, but positively misleading. For example, let us consider the large number of mastoid operations performed, when the only justifiable symptoms for such a procedure are swelling, redness and tenderness, or pain on pressure over the process; whereas these local manifestations were clearly secondary and incident to an existing circumscribed inflammation within the external auditory canal. On the other hand, because of the absence of such symptoms, an existing mastoid empyema may not be recognized or even suspected, although an examination of the external canal would have revealed distinct tumefaction or bulging of its postero-superior quadrant, a condition that is distinctly diagnostic of serious mastoid disease even when no previous tympanic inflammation has existed; and especially if accompanied by considerable head pain, tinnitus, and vertigo.

The temperature and pulse in these cases are often unreliable, although of considerable importance when associated with other definite symptoms. In one case that came under observation in which the ultra-conservative or expectant line of treatment had been followed (the only symptoms being head pains and otorrhea), little or no variation in either temperature or pulse was noticed until six hours preceding death, when it suddenly registered  $108\frac{1}{2}^{\circ}$ . The post-mortem revealed extensive necrosis of the mastoid and petrous portions of the temporal bone, all of which resulted from an acute suppurative otitis media.

I am not quite certain but that the symptoms to which I wish in particular to call your attention may only add one more to the already numerous doubtful diagnostic indications. The several patients who have done me the courtesy to present themselves this afternoon for your examination can in all probability establish what virtue there may be in this local manifestation much better than any explanation I might make.

Within a comparatively brief period it has

fallen to my lot to see and operate upon some nine cases of mastoid empyema, in none of which were the usual mastoid symptoms present, but in all the pain (being intense in three) was confined to the *occipital* region, the chief point of intensity being situated immediately below and slightly anterior to the angle formed by the junction of the inferior curved line with the external occipital; or a line drawn one inch below the external occipital protuberance, and one inch anterior to its (the line) inferior extremity will indicate the point of election. In all of these cases the pain seemed to be unusually severe, and notwithstanding some aural suffering may have been experienced at the beginning of the attack, it promptly subsided in the ear and became constant and increasingly severe at the point designated. In this entire series of cases the *occipital pain* was of such commanding and urgent importance that other symptoms failed to attract the attention of either physician or patient. In each and every case opening the mastoid evacuated a quantity of pus more or less offensive, which in turn relieved the suffering, otorrhea, or other symptoms.

I will now ask your attention to the consideration of several rather typical cases illustrative of this unusual form of mastoid disease.

CASE I.—W. R. C., aged nine years, suffered from an attack of measles on February 1st, 1896, followed four days later by a severe pain in the left ear. At the end of one week a spontaneous rupture of the membrana tympani occurred, which, however, only gave slight relief. Three days later, notwithstanding the copious discharge, the pain grew worse. After some days of suffering Dr. E. E. Graham was consulted, who the following day requested an examination by the writer. We found an ample opening situated in the posterior inferior quadrant of the membrana tympani, through which escaped a free discharge. The pain, being intermittent in character, was not then referred to the ear or mastoid, but to the *occipital* region; neither was there redness or swelling over the mastoid, nor could pain be produced by pressure over the process, but possibly a "doubtful tenderness" was experienced on *deep* pressure over the antrum. There was an entire absence of tumefaction of the postero-superior wall of the external canal.

If in an acute suppurative otitis media pain persists after free drainage has been established, it must be due either to exten-

sive maceration of the mucous lining of the tympanum, or to a suppurative involvement of the mastoid, even if the usual external signs of mastoid empyema are absent. We can exclude the former if under favorable circumstances pain continues more than a few days (in this case it had extended over several weeks); whereas in the latter *continuous* suffering following an acute ear disease with active suppuration would only confirm the supposition of mastoid empyema, especially when there is added to this the presence of *occipital* pain, which we are almost prepared to believe diagnostic in such cases.

The mastoid was opened April 15, or about five weeks after the ear complications began. As soon as the antrum was reached a large quantity of pus escaped, the opening communicating freely with the external canal. After proper irrigation the wound was packed with iodoform gauze, which was renewed at stated intervals. From the very day of operation all suffering ceased. Three weeks later the mastoid wound had entirely healed, the discharge had ceased, and the hearing had resumed its normal condition, which improvement you will notice continues to-day, sixteen months after the date of operation.

CASE II.—J. C. W., aged 39 years, received a punctured wound of left thumb in January, 1895, which at once became very painful. Two days later the glands of the left side of neck became painfully swollen; pus formations occurring two days later, at which time the same were evacuated. Six weeks later similar abscesses were opened, both on the neck and right leg. About ten days subsequently two additional abscesses were opened on the left leg and one on the left arm.

The general pyemia lasted about ten weeks, the patient being delirious a part of this time. One year after receiving the punctured wound he consulted the writer at the suggestion of his physician, Dr. A. H. Hulshizer. At this time his head pains continued to be severe, being confined to the left side, especially marked over the *occipital* region. Objectively the mastoid was utterly devoid of localizing symptoms, although marked hyperemia and bulging of the left membrana tympani were present. A free incision of the drum-head liberated considerable pus; the *occipital* pain, however, continued.

On March 19, 1896 (or about two months after consultation), we opened the mastoid. The cells were necrotic and well filled with thick brownish-yellow pus. As the antrum

and attic were extensively involved in the necrotic changes, we continued the operation into the middle ear, establishing direct communication between the external auditory canal and the opening in the mastoid. The usual after-treatment was carried out. The patient was relieved of all suffering, and made a slow but uninterrupted recovery; his loss of hearing was quickly recovered, and to-day, you will observe, remains quite normal.

CASE III.—Mr. M. A. J., aged twenty-eight years, contracted an attack of la grippe, in November, 1895. The usual febrile and catarrhal symptoms continued for about ten days, when the left ear became involved. The pain from the acute otitis media continued for five days, at which time the membrana tympani ruptured, relieving the pain only slightly. Under treatment this discharge ceased in two weeks, which, however, only served to increase the suffering. This cessation of discharge and continuation of pain lasted for about five weeks, when an acute recurrent otitis media developed, causing extreme suffering for two days, when the membrana tympani again ruptured, relieving the patient somewhat. The discharge from the ear and pain over the left side of head, especially severe over the *occipital* region, continued for one month longer, when he consulted Dr. J. C. Wilson, who in turn referred him to the writer on February 27, 1896. He did not show any of the usual symptoms of mastoid disease; not the slightest redness, swelling, nor tenderness on deep pressure; but the *occipital* pain was and had been a prominent symptom.

A large quantity of granulation tissue filled the tympanic cavity, and extended into the external canal for about one-eighth of an inch. This obstruction to free drainage was, we thought, quite sufficient to account for his suffering. On March 9, under general anesthesia, we removed from the tympanum this entire mass of inflammatory products, no ossicles being found. Some relief was obtained for three days, at which time the pain became quite as severe as ever. On March 16 (seven days later) we opened the mastoid with little or no difficulty, the bone having become very soft from extensive necrotic changes. The mastoid antrum communicated freely with the external canal, thus greatly facilitating the usual after-treatment of irrigation, etc. On account of the unusual necrotic changes, we made the opening into the mastoid permanent for a period of eight months, at which

time he had entirely recovered, except that the lost hearing was not regained. In this patient (as has been noted in several similar cases) the suffering was permanently relieved from the date of operation, the prompt cessation of the *occipital* pain being especially marked.

CASE IV.—R. A. M., aged forty-seven years, suffered from a severe attack of follicular tonsillitis in October, 1894. About one week later he developed a painful otitis media of left ear. He claims that the acute suffering continued to grow progressively worse for a period of two weeks, at which time he consulted Dr. Noell, of the Cooper Hospital, Camden, N. J., by whom he was referred to the writer at the Jefferson College Hospital. An examination showed moderate congestion of the inferior membrana tympani, the membrana flaccida being *intensely* inflamed. There was no bulging of any part of the membrane. The malleus could be distinctly outlined in its entirety. There was neither pain, swelling, nor redness over the mastoid. The suffering was referred chiefly to the *occiput* and left posterior side of the head. Not being able to account for his unusually severe suffering, we referred him to Dr. F. X. Dercum, who reported negative results from a neurologic point of view. The ophthalmic report was likewise negative.

For some time he had been treated in various ways for "neuralgia," but the administration of morphine alone gave relief; this being effective only while under its immediate influence. He was admitted to the hospital, and under general anesthesia we freely incised the inflamed membrana tympani, but did not find any fluid. His suffering was somewhat relieved for five days, when the *occipital* pain returned with increased vigor, the incised drum-head having healed in the meantime. On November 1st, 1894, we opened the mastoid, and were gratified to see a quantity of pus flow from the process. This evacuation of pus naturally relieved the suffering, and he made an uninterrupted recovery. Furthermore, his hearing is normal, in which condition it has continued for more than two years.

In conclusion we may add:

That the history of these cases reveals an entire absence of the *usual* objective symptoms attributed to mastoid empyema.

That redness, swelling and tenderness over the mastoid region are not necessarily diagnostic of deep mastoid disease, but are frequently secondary local manifestations of a

furunculous inflammation of the external auditory canal.

That tumefaction or bulging of the postero-superior quadrant of the external canal, especially when accompanied by otorrhea, is always diagnostic of mastoid empyema (even though all local manifestations are absent) and demands prompt surgical interference.

That a consideration of the pulse and temperature are necessary and of much value in some cases, while in others they are totally unreliable, even misleading and confusing.

That in otherwise more or less obscure cases the presence of *occipital* pain (as above detailed) is of commanding diagnostic importance.

#### THE TREATMENT OF LUPUS.

BY BALMANNO SQUIRE, M.B. LOND.,  
Surgeon to the British Hospital for Diseases of the Skin,  
King's Cross, London.

The author describes a new mode of treating lupus. This is an endeavor to improve on the methods devised by Professor Volkmann of Halle for the treatment of this disease. Volkmann's methods were of two kinds: the one was the scraping out of the soft and friable new formation by means of comparatively sharp spoons; the other was the execution of a multiplicity of closely placed but shallow punctures, made with the point of a lancet, this latter process being designed for the treatment of such portions of the diseased area as are not sufficiently soft and friable to yield readily to scraping. Mr. Squire states that these methods, although always leading to rapid and considerable temporary improvement, never induce a complete arrest of the progress of the disease. After reviewing various other methods of treatment, such as excision, the actual cautery, the thermo-cautery, chemical caustics, and the various modifications of puncturation, and explaining what he regards as prohibitive disadvantages in the case of each of these, he assigns reasons for objecting also to the administration of either chloroform or ether in operating on lupus. He accordingly avails himself of local anesthesia, namely, by freezing the affected area by means of Richardson's apparatus. This preliminary is indeed an essential condition, in more ways than one, of the method which Mr. Squire has devised, since for the performance of his operation a glacial state of the affected area is indispensable. In this state, as he finds, the skin can be carved, or as he expresses it "sculpted," with the same

ease as if it were moderately hardened putty, and the diseased structure can thus be brought away in solid chips. For executing the "sculpting" he uses a modification of Volkmann's steel spoons, that is to say, spoons of about one-fourth the size of Volkmann's and having much sharper edges. In the glacial state, sound skin and diseased skin comes away with equal facility under the action of these spoons. Accordingly Mr. Squire finds himself able by means of them to remove not only the soft and friable tissue which alone comes away under the customary method of scraping as devised by Volkmann, but also the whole of such tougher portions of skin as are in a less degree affected with lupus. But not only is he able thus to remove the whole of the area which may be in any degree diseased, but also a zone of apparently perfectly healthy skin. The last he considers it specially necessary to remove since he holds that the real limits of a lupus patch extend for some little distance beyond its visible limits.

He claims for his operation not only that it is more thorough, but also that much more precision can be imparted to it than is possible in the operation of "scraping." He describes his operation as a "specially conservative excision of lupus, executed not with a knife but with a curette, and performed under conditions which permit of more than customary precision." A necessary feature of this method is that the limits of the patch to be "sculpted" must be previously carefully marked out with a black line drawn round it on the skin. This is requisite because when the skin is frozen the lupus-patch and the skin around it are alike of a uniform dull white color, so that all trace of the margin of the patch disappears for the time being.

Mr. Squire draws attention to the fact that the operation he has devised is essentially different from Volkmann's operation (scraping) not only in detail but in scope. He claims other advantages than those above referred to as incidental to operating on skin in the glacial state. One of these is that not a single drop of blood escapes to embarrass the operator; this he regards as an important factor in an operation which, from his point of view, demands considerable precision for the attainment of a successful issue. Another is that in the glacial state the skin is absolutely rigid. In Mr. Squire's view this circumstance is a notable additional aid to the attainment of precision. In the operation of scraping, as ordinarily performed, an em-

barrassment arises from the ready yielding of the skin in whatever direction the curette may at the moment be pressed. "The considerable elasticity of the skin and its loose attachment to subjacent structures renders the 'scraping' of a lupus-patch as ordinarily performed a very imperfect procedure; whereas the frozen skin around the frozen patch fixes the patch all round as firmly as a drum fixes a drum head. Another advantage claimed is that the frozen skin does not clog the curette."

After thus thoroughly carving out from the frozen skin all of the diseased structure so far as ascertainable, Mr. Squire "still further safeguards" the efficacy of his operation by "linearly scarifying" the floor and margin of the sculpted-out area at a subsequent sitting by means of his "multiple linear scarifier." This is an instrument composed of sixteen parallel scalpel-blades fixed on one handle, the cutting edge of each blade being separated from that of its neighbor by an interval of only a thirty-second of an inch. For this operation the area is again frozen as before. He says: "By such means I have succeeded in completely healing very many cases of lupus, in such wise that the patients have remained absolutely free from the disease for a series of years." In conclusion he desires to say that he has acquired practical experience of a great many modes of treating lupus, but no method that he has tried has yielded him results so good as the one he has here described.

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#### *THE TREATMENT OF HEMORRHOIDS BY THE INJECTION METHOD.*

BY LEWIS H. ADLER, JR., M.D.,

Professor of Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine; Surgeon to the Charity Hospital, and to the Out-patient Department of the Episcopal Hospital; Professor to the Professor of Anatomy, Medical Department University of Pennsylvania, Philadelphia, Penn.

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I am sure that my experience in rectal work is by no means unique, in that the majority of patients with hemorrhoidal troubles come to me greatly prejudiced against any operative procedure involving the employment of general anesthesia, and especially the use of the knife. These objections have been raised not only by the laity but also by physicians who have been similarly affected. Such an argument should not and would not prove a factor in altering the character of

advice to be given to a patient were I satisfied that only one plan of treatment could effect a cure; but where a choice exists of several methods of effecting the same or similar results, it is not only our duty but a necessity for us to respect the patient's wishes.

In a number of instances, sufficient to convince me of the efficiency of the method and to enable me to place my opinion on record, I have treated internal hemorrhoids (in selected cases only) by the injection of carbolic acid. The results obtained in every instance have been eminently satisfactory to patient and myself alike.

I am thoroughly acquainted with the unsatisfactory experiences and the unfavorable opinions expressed regarding this treatment by such authorities as Kelsey of New York, Mathews of Louisville, Ky., Allingham of London, and others of equal eminence, and I am furthermore free to confess that for a long time the weight of this testimony deterred me from giving the method a trial. On the other hand, I have diligently perused the literature, past and present, dealing with the other phase of the question, and after reading the excellent treatise on "Hemorrhoids and other Non-malignant Diseases of the Rectum" by W. D. Agnew, M.D., of San Francisco, California, I determined to test the merits of the treatment.

*External Hemorrhoids.*—Agnew\* admits that the quickest, neatest, least painful and most desirable way of disposing of any form of external hemorrhoid, cutaneous tag, or like redundant tissue is by excision, but employs the carbolic acid injection in those cases in which the patient is averse to being treated by any plan involving the use of the knife or scissors. He claims that this method effects a cure, to which such persons will readily submit, although informed that a longer time is required for the complete eradication of a tumor thus treated, and that more pain and inconvenience may be experienced from the effects of the operation than would result from that by excision. Personally, I have had no experience with this method of treating external hemorrhoids, preferring and always advising in operative cases the excision of such tumors.

According to the same authority† and as the result of his observations, the objections to the treatment of external hemorrhoids by

carbolic acid injection pertain solely to the length of time required for the removal of the tumor—a period of three or four days—and the pain following the injection, which is not intense, but is at times more or less annoying, usually beginning within one or two hours after the operation, and continuing for twelve or fourteen. Agnew advises against the employment of this method in the treatment of external hemorrhoids when inflamed and in a highly sensitive state. He especially notes the care that should be taken when operating on these tumors by injection, to see that quite a considerable portion of the cutaneous surface, especially at the summit of the pile, is affected by the solution applied just beneath the skin; otherwise the skin will become inflamed in order to let out the interior coagulum, which he has often seen come out in three days without suppuration or showing the appearance of much moisture, and in one unbroken cystic-looking mass. The operation is to be performed with a view of cauterizing all of the tissue to be removed, which can be governed only by the dictates of judgment and as a result of experience.

*Internal Hemorrhoids.*—It is to the treatment of internal hemorrhoids by the injection of carbolic acid that I wish especially to invite your attention, in the hope of eliciting a free discussion as to its merits or demerits based upon the actual experiences of those who have given the method a fair trial.

*Formula.*—The formula which I use is the one advocated by Agnew, and the method of its preparation is best detailed by a *verbatim* description as given in Dr. Agnew's work on Diseases of the Rectum.\*

"The solution of carbolic acid found to be uniformly successful in the treatment of hemorrhoids is prepared by first making a solution of the acetate of lead and borax in glycerin, in the proportion of two drachms each of the chemically pure salts to one ounce of Price's glycerin.

℞ Plumbi acetat.,  
Sodii biborat., āā ʒij;  
Glycerinæ, fʒj.

Mix in a graduate, pour into a two-ounce vial, and let it stand for twenty-four hours.

"The solution of the salts is hastened by placing the vial in a warm-water bath and allowing it to remain there for fifteen or twenty minutes. The glycerin can be handled to a better advantage, and its measurements

\* *Op. citato*, p. 18.

† *Op. citato*, pp. 22-23-24.

\* *Op. citato*, pp. 35 and 36.

more accurately made and retained by warming it as well as the graduate before it has been poured into the graduate and the chemicals have been added.

"Select Calvert's No. 1 crystallized carbolic acid and pour a sufficient quantity, liquefied by warmth, into a two ounce graduate to measure one ounce, and add two drachms of distilled water. To this add enough of the glyceride of lead and borax previously made to make the combination measure exactly two ounces.

℞ Acidi carbolici (cryst.), 3j;  
Aque distillat., f 3ij;  
Sodii biborat. et plumbi acetat. et glycerin, f 3vj.  
Misce et sig.: Solution for hemorrhoids.

"The object of the water in the formula is to lessen the syrup-like consistency of the preparation. Should equal parts of crystallized carbolic acid and the glyceride of lead and borax be combined, the solution will be found rather too heavy for convenience. It will not flow through the hemorrhoidal needle as freely, nor take hold of the tissues when injected as quickly, as does a solution containing a small proportion of water.

"Be particular in the weights and measurements, and the purity of the ingredients entering into this preparation, as anything unnecessarily irritating should be scrupulously avoided. I have tried synthetic carbolic acid and found the odor of tar to be decidedly stronger, and believe it much more acrid and irritating than the commoner preparations; neither can I see that anything is gained in using vegetable glycerin.

"Some make no allowance, in attempting to give the formula, for the increase in bulk of the glycerin occasioned by the addition of the one-half ounce of solids, and direct that the ounce of carbolic acid be added to the full amount of the glyceride of lead and borax when made. By this inadvertence not much over a thirty-five per cent. solution of carbolic acid is obtained. After trying the acid in varying strengths and watching its effects, I have concluded that not less than a fifty per cent. solution should be used. The addition to the solution of the acetate of lead is designed to restrict the action, and that of the borax to lessen the irritative properties of the acid. The acetate of lead not only keeps within limit the distribution of the acid at the time the solution is forced out of the hypodermic syringe, but of itself combines with a certain portion of the albumen of the blood and other tissues, forming the albuminate of lead. If I were to make a change in

the formula it would be toward an increase rather than a diminution of the quantity of acid."

*Preparatory Treatment.*—This includes a careful study of the patient's physical condition. I would advise against the employment of the injection treatment in cases predisposed to phthisis, or already affected by this disease, and in diabetes or in chronic diseases of the liver, heart, or kidneys.

During an acute inflammatory attack of hemorrhoids is not a favorable time to operate, on account of the engorged condition of the rectal vessels and the irritability of the mucous membrane of the bowel. Such conditions should be relieved by local medication and by remedies directed towards regulating the bowels and increasing the activity of the liver.

*Operation.*—At the time of the operation the hemorrhoids are exposed by inducing the patient to have a stool or to sit over hot water.

It is advisable to smear vaselin over the muco-cutaneous surfaces prior to operating, as advised by Agnew,\* in order to prevent the solution used for the injection coming in contact with the parts.

The patient should be placed in Sim's position, and the hemorrhoid being sufficiently well exposed it is to be punctured at its most accessible point, preferably about midway between its base and apex, and the point of the needle passed to about the center of the growth. Care must be exercised that the needle's point is inserted beyond the proximal end of its opening, as otherwise the preparation will be injected on the outside of the tumor. In a large growth eight or ten punctures may be found necessary.

The injection is to be inserted slowly, several drops at first, then drop by drop, watching the action of the solution as shown by the change of color that creeps over the surface of the pile. This change of color Agnew states is quite marked with hemorrhoids of a delicate covering, less so with those possessed of more fibrous coats. The needle should be held in position for a short time, and if the quantity injected appears to be less than needed, more of the solution should be used. Agnew states that the solution takes effect slowly by virtue of its astringency and syrup-like consistency, and no doubt extends farther than is always apparent at the time of operating. If the hemorrhoid be large, and its cavities filled with blood exhibiting strong

\**Op. citato*, p. 34.

arterial pressure, more time will be occupied in performing the operation than is generally supposed, as many as twenty or thirty minutes occasionally being required. The time is taken up in such cases by holding the needle in place until assured that sufficient of the solution has been used to effect the desired result. If the part feels doughy or springs up under the finger like an elastic ball when pressed, or blood flows freely through the place of puncture after the needle has been withdrawn, either enough time has not been allowed for the preparation to take full effect, or a sufficient quantity has not been injected.

After the entire cavity of the tumor has been thoroughly reached by the injection, and in a large tumor a few drops have been deposited on the surface of the pile so as to be sure of thoroughly cauterizing the more dense tissue of its integument—which Agnew states might otherwise inflame, creating unnecessary pain and suffering—the hemorrhoid is to be thoroughly dried, covered with carbolyzed vaseline, and returned within the bowel. Several tumors may be treated in this manner at one operation, and I have seen no bad results ensue, although I have used several drachms of the solution in a single treatment.

No speculum is required as a rule in this method of treating hemorrhoids.

The needle required for the hypodermic syringe employed in giving these injections should have a little larger bore than the needle employed for ordinary hypodermic use, so as to permit the fluid to flow through readily, which the smaller needle prevents, owing to the consistency of the injection fluid.

*After Effects and Treatment Following Operation.*—In some cases pain is experienced several hours after the operation, but is usually controlled by suppositories of the aqueous extract of opium, one-quarter of a grain, and the extract of belladonna, one-eighth of a grain, used *pro re nata*. Difficulty in urinating may occur, and is usually relieved by a hot-water bag applied above the pubes, or by a sitz bath. Catheterization is seldom required. A desire to have the bowels moved can be allayed by the suppositories and by hot-water compresses applied to the anus.

I do not endeavor to confine the bowels for any definite period after this operation; usually the patient's fear of having a movement effectually restrains such a desire, and on the third day I am in the habit of ordering administered fractional doses of calomel

and soda followed by a saline. Just preceding the time the bowels act I order given a rectal injection of eight ounces of carbolyzed oil (two per cent. carbolic acid) or an injection of slippery elm tea or of borax water (a dessertspoonful of borax to the pint of water).

A peculiar odor, sometimes noted when the coagulum is being thrown off, should not be interpreted as indicating suppuration.

Agnew states that to effect a safe, speedy, and radical cure of a case of hemorrhoids it is desirable to get rid of the tumor bodily, not by shrinkage or contraction, leaving a hard or indurated prominence, subject to resuscitation and a return of the old malady, nor by inflammatory destruction, but by a separation of the spongy and vascular growth from the normal tissue of the body, the same as if it were dissected from its remotest attachments. This is obtained by putting a sufficient quantity of the preparation recommended just where it is required and such results will invariably follow.

My experience with the treatment thus far leads me to endorse most heartily Dr. Agnew's strong commendation of the method which he has so successfully employed for a long time.

Personally, I cannot speak authoritatively regarding the permanency of the cure effected by the carbolic acid injection of hemorrhoids, for I have not had an opportunity of observing cases treated by this method for a longer period than two years, but from my observations I am inclined to believe that it is a radical procedure.

Regarding the dangerous results following this treatment—of carbolic acid poisoning, embolism, sloughing and ulceration, or their sequelæ, abscesses or fistulæ—I have not witnessed any such results, and am loath to believe that they do occur if the operation be performed carefully and skillfully and with a proper observance of aseptic principles.

1610 ARCH STREET.

#### REPORT OF TWO CASES OF TUBERCULAR KIDNEY.\*

BY MILTON J. LIGHTY, M.D.,  
Alliance, Ohio.

CASE I.—Mr. F. C., aged sixty-eight, was admitted to the Allegheny General Hospital June, 1896, and placed under the treatment

\* Read before the Stark County Medical Institute, Ohio.

of Dr. Joseph C. Ohail, visiting physician to the hospital.

For many years he had enjoyed the best of health, though he was a hard laborer, exposed to all conditions of weather. During the last five years he had several attacks of rheumatism and bronchitis, and two years ago he first noticed a constant pain over the kidneys and in the abdomen about the umbilical and epigastric regions. At the same time micturitions became gradually more frequent and difficult. Six months ago he was obliged to quit work. The physical signs were those of a mild anemia, with an average hemoglobin of sixty per cent. and corpuscles 3,500,000. The lungs were apparently normal, heart slightly enlarged, vessels soft and compressible. Pressure over abdomen elicited great tenderness, and deep pressure revealed a slight nodule above the umbilicus. The urine was alkaline, containing phosphates and epithelial cells (no albumen, no casts, and no sugar).

Continued distress after meals, much pyrosis and several emeses, suggested an examination of gastric contents. After a test meal no hydrochloric acid was found, the absence of which indicated carcinoma of the stomach. The patient was chloroformed and a hard immovable tumor about the size of an egg, with smaller nodules surrounding it, was found to the right and above the umbilicus. Liver dulness and tumor dulness were inseparable. The position of the tumor was noted and after the patient had fully recovered from the anesthetic the stomach was expanded with gas, when it was found that the greater curvature of the stomach did not extend as low as the tumor, thus excluding involvement of the stomach.

The rectum and colon were then expanded with air, when it was found that a tympanic note followed the transverse colon separating hepatic and tumor dulness. From these observations it seemed apparent that the tumor was free from the stomach, liver and transverse colon, that it was retroperitoneal, and probably a cancer involving the glands of the mesentery. The lumbar pain was supposed to be a referred pain from the tumor, and the frequent micturition supposed to be caused by a cystitis from a retention of urine by a slightly enlarged prostate gland. A fatal prognosis was given and the patient put upon a purely palliative treatment.

Two months after admission it became necessary to use the catheter twice daily. Then pus and albumen suddenly became

abundant. The patient gradually grew weaker and died August 11, 1896.

At the autopsy the prostate was found enlarged, the abdominal tumor involved the mesentery and was composed of numerous nodules, many of which were suppurating. The kidneys were both enlarged to about three times the normal size and contained many dilated ducts and tubules filled with pus and plates of crystallized material. Miliary tubercles were found over the entire surface of the kidneys and over portions of the lungs. Microscopical sections show cheesy necrosis of the kidneys, and the tumor, instead of being a cancer, was a tubercular tumor also.

Though the case at first seemed like a cancer of the mesentery, it is fairly evident (from the late appearance of the pus and albumen in the urine) that the sudden supuration of the kidney was due to a secondary infection from the tubercular glands of the mesentery. The urine, unfortunately, had not at any time been examined for tubercle bacilli.

CASE II.—Mr. J. T. L., age thirty-six, laborer, came under my care December 1, 1896, with the history of scarlet fever at four years of age, a severe attack of measles at twenty, and repeated attacks of malaria until he sought a change of climate. During the last eight years he had had several attacks of influenza followed by chronic bronchitis. One year ago he first noticed pain in the back and on the right side, which has been constant since. There was a loss of appetite and weight attended with repeated irregular chills. Micturition was frequent and painful, followed by much tenesmus. The face was swollen; heart and lungs were apparently normal. An examination of the sputum was negative. The abdomen was rigid, with considerable pain over the stomach and liver, which was very much enlarged. Liver dulness extending three inches below the costal margin. Sounds were passed, revealing an absence of urethral stricture and stone in the bladder. The urine was 1018 in specific gravity, acid, with an abundance of pus and other sediments. Albumen was present in considerable amount even when the microscope showed an elimination of the pus after repeated filtrations. A diagnosis was made of chronic Bright's disease with an associated cystitis. The liver was supposed to be enlarged from amyloid condition of cancer; enlargement from a possible chronic malaria indicated by his frequent irregular chills was excluded by repeated ex-



aminations of the blood, which seemed free from the malarial plasmodium.

The treatment consisted of rest in bed, liquid diet, mild diuretics and tonics. With this regimen some of the symptoms improved for about one month, though the anemia increased. The pus and albumen diminished considerably and micturition was less frequent and painful. Repeated search was made for casts, with constantly negative results. I then made an examination for bacteria in the urine and found many tubercle bacilli, which, according to Strumpell, "are an infallible and absolutely decisive sign" of tuberculosis of the kidney. The patient rapidly declined and died in January, 1897, after seven weeks observation.

At the post mortem examination I found an enlarged amyloid liver. Numerous abscesses perforated the capsule of the right kidney, which was about three times the normal size, with many miliary tubercles. Microscopical sections showed a marked and advanced cheesy necrosis. This then was apparently a case of primary tuberculosis of the kidney in which perhaps fatal termination might have been delayed by an early operation, either nephrotomy or nephrectomy, which according to statistics from Ashhurst is successful in about 60 per cent. of cases.

Though the actual condition discovered so late in both these cases might not have been improved in either by any kind of treatment whatever, at the same time they clearly indicate to me the importance of an early examination of the urine for tubercle bacilli. Tubercular kidney covers perhaps from 3 to 5 per cent. of all the affections of the kidney, and is no doubt often mistaken for simple nephritis.

#### *SUCCESSFUL REMOVAL OF A CYSTIC ABDOMINAL TUMOR FROM A CHILD AGED SEVEN MONTHS.*

CAMPBELL, in the *British Medical Journal* for May 15, 1897, details the case of a child coming under his care with the following condition: The labor was difficult, forceps being applied high up. The child thrived well, and was apparently healthy at the age of three months, but about a month later the mother noticed swelling of the abdomen, which gradually increased. Periodical attacks of violent colicky pain occurred.

When it came under the reporter's observation the general nutrition was good. The respirations were shallow and embarrassed. The abdomen was greatly distended by a

lobulated tumor, which was more prominent on the left side, and felt hard in its upper half, but soft and fluctuating below. There was dulness on percussion all over the abdomen except in the right hypochondriac region, which was resonant.

On July 10, two days after first examination, it was chloroformed and a median incision made from midway between the ensiform process and navel to midway between the navel and symphysis pubis. This exposed a large tumor lying behind the posterior parietal peritoneum and pushing the intestines into the right hypochondrium. The cystic portion having been tapped, the whole mass was enucleated from the subperitoneal tissue. No bleeding of consequence occurred, and no ligatures were required. The tumor had no pedicle, but was firmly attached deep in the left side of the pelvis. It lay in front of the left kidney, which was situated at the level of the iliac crest, and was freely movable. The peritoneal covering of the tumor was attached to the edges of the lower end of the abdominal wound, and the cavity was packed with gauze. The upper end of the wound was closed by two layers of sutures, silk being used for the peritoneum and silkworm gut for the skin and aponeurosis. The operation was well borne, except for a few seconds during the extraction of the tumor, when the pulse became bad, apparently owing to pressure on the cardiac area of the diaphragm.

Two hours after operation the child took milk and barley-water, and afterwards fed regularly every two hours. Fifteen minim doses of whiskey were given every half hour for the first three hours. The child slept well. She vomited slightly on one occasion only. On the sixth day the gauze packing was removed, and the bowels acted spontaneously. On the eleventh day the silkworm-gut stitches were removed. Recovery without interruption.

The tumor was composed of a cyst containing about ten ounces of clear yellow fluid, and of a solid portion, in which a mass of cartilage and a piece of bone lay embedded. It weighed three pounds when fresh. There was nothing to indicate the organ from which it originated.

This appears to be the youngest child from which a cystic abdominal tumor has ever been successfully removed. The only case which approached it in point of youth is that operated on by Roehmer, of Berlin, in 1883, at the age of twenty months. The present case is therefore thirteen months younger than the Berlin one.

# The Therapeutic Gazette

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## Leading Articles.

### NON-MEDICINAL METHODS IN THE TREATMENT OF DISEASES OF THE HEART.

The so-called Schott method of treatment of heart disease consists in large part of passive movements of the limbs of the patient and in certain cases a resort to moderate and graded exercises. As carried out at Nauheim it possesses the additional advantages that the patient gives himself up entirely to his cure, and nothing is left undone which can aid the special movements and the baths in improving the nutrition of the tissues and the condition of the peripheral circulation. At first sight this recently advocated, but by no means entirely new, method which Schott has urged has been cited as an example of the fact that the treatment of heart disease by rest is not so important as some of the profession have been led to believe, and it has been thought by some that rest as compared to this newer treatment by exercise is by no means so valuable a remedial measure as we have thought.

We believe, on the other hand, that the so-called Schott treatment of cardiac disease is necessarily limited to a very much smaller class of patients than is the treatment by rest, and we see nothing contradictory in the application of these two non-medicinal measures for the treatment of cardiac lesions.

On the contrary, we think that the results which have been obtained by advocates of the method forcibly illustrate the fact, so well recognized by all therapists, that all cases cannot be benefited by the same treatment and that what benefits one may actually do harm to another. Nor is there any contradiction in these two methods, for the Swedish movements do not in any way necessarily impair the rest which the heart of the patient may receive by means of his personal inactivity. On the contrary the work of the heart, even with the resistance movements which are practiced in the methods of Schott, is not very materially increased, while on the other hand a large amount of labor is taken away from the heart by the fact that the muscular contractions so improve the circulation in the various lymph spaces of the body that the heart is considerably aided, and instead of its being the only organ employed in causing a circulation of fluids in the tissues of the muscles of the body, there are other aids in propelling blood and in forcing it along in the lymph paths. As a result of this the peripheral portions of the body are not continually irritating the heart by calls for more blood, neither do they become congested with stagnant and over-used fluid. The general nutrition of the entire body is improved, and simultaneously with this improvement comes a change in the nutrition of the heart.

The moral seems to be that while nearly all cases of cardiac disease with ruptured compensation require rest, many cases in order that their general health may be improved require at the same time a certain amount of muscular movement. A practical application of this idea is already familiar to the profession in carrying out the rest-cure, in which, as is well known, the patient is placed in bed, prevented from making any exertion, but his or her circulation and nutritive processes are maintained by massage in the morning and electrical stimulation in the afternoon, not to speak of the bath and the cutaneous rubbing with a towel which is resorted to while the patient lies prone on a blanket, every morning. Unless these measures are carried out in addition to the rest it

is evident that all the benefits from the so-called rest treatment of cardiac disease cannot be obtained. In a recent number of the *Medical Record* Dr. Beverley Robinson of New York discusses not only the rest-treatment of cardiac disease and that which has been recommended by Schott, but he also dwells upon the advantages and disadvantages of the method instituted by Oertel, a method which had the design of improving the general circulation by more or less active muscular exercise taken by the patient, as a rule in the form of mountain-climbing. We understand that in Europe at least Oertel's method has greatly decreased in popularity because its technique was excessively rigorous, and the reason that the resistance movements of Schott seem to do more good, and to be more popular, seems to lie largely in the fact that they accomplish the same result without producing any degree of exhaustion of the heart or general nervous and muscular systems.

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*THE USE OF ANTISTREPTOCOCCIC SERUM  
IN THE TREATMENT OF  
VARIOUS FORMS OF  
SEPTICEMIA.*

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The very interesting studies which have been made during the last few years in regard to immunity, and our ability to produce it in animals and in human beings, has resulted, first and foremost, in the employment of diphtheria antitoxin for the protection of persons who are infected by the Klebs-Loeffler bacillus, and the extraordinary results which have been obtained by the use of this serum in the treatment of this disease have placed its use upon as firm a basis as that upon which any therapeutic measure can rest.

Naturally experimenters and clinicians have gone further than this and have attempted to use other serums prepared in ways identical with or only slightly different from the methods employed in the preparation of diphtheria antitoxin, for the protection of individuals suffering from an infection with other malignant germs than those of diphtheria. One of the most noteworthy attempts of this character has been the employment of the so-called antistreptococcic serum, or the serum obtained from animals supposed to be rendered immune to the streptococcus, in persons who are suffering from septicemia following injuries, surgical operations, or parturition. While the scientific information upon which this treatment is based amply justifies the employment of antistreptococcic serum and

other serums destined for similar purposes, it is an unfortunate fact that the results which have been obtained by its employment so far have not been such as to give us the encouragement which the early studies with regard to diphtheria antitoxin gave us. Medical literature, particularly in England and in Europe, has teemed during the last few months with isolated reports of cases of septicemia treated by this means, and some clinicians have even gone further and employed this serum in the treatment of such a disease as scarlet fever, in which, in addition to a specific infection, it seems probable that grave streptococcic infection also occurs. It is worthy of note, too, that in the treatment of scarlet fever results have been obtained which would certainly justify the experimenters in continuing the trial of this substance, although they have hardly been sufficiently numerous or so universally successful as to justify the average American physician in following in their pathway. Perhaps the most notable contribution which has been made in American medical literature to the study of this question is a series of papers recently communicated to the Section on Gynecology of the College of Physicians of Philadelphia by Hirst, Norris, Shoemaker, Davis, Baldy and Shober. These papers combined are so exhaustive that it is not possible for us to give more than a summary of the views of their individual authors. Dr. Hirst from his experience in the employment of antistreptococcic serum in puerperal sepsis believes we are not in a position to pronounce any judgment on this new treatment; that we should not be so prejudiced against it as not to give it a thorough clinical test, and on the other hand should not be too enthusiastic concerning it. As he well points out, the following forcible objections can be urged against this method of treatment: First, the well tried, older plans of treatment will result in the cure of about four-fifths of the cases. If, therefore, the serum is employed along with other suitable treatment, four out of five cases will be cured in all probability, and some of these cures may be erroneously attributed to the serum. Next, he points out the difficulty of obtaining a thoroughly reliable preparation, which difficulty has been largely obviated within the last few weeks by the placing upon the market of a reliable preparation. Third, he believes that the use of this remedy must be always more or less empirical, for while it is true that most cases of puerperal infection

are due to streptococci, there are others which suffer from a mixed infection or in which the streptococcus is not present at all. Again, the treatment is not entirely free from risk, for several French observers have reported deaths in which the result was apparently unmistakably due to the serum. Again, its use may cause the physician to be careless in the employment of other necessary remedial measures. And, finally, we know nothing as to the real method by which the serum does good. Norris concludes the report of a case in which he employed the serum by stating that very strong clinical evidence of streptococcic infection should be had before resorting to the employment of antistreptococcic serum in the treatment of puerperal sepsis.

Shoemaker's case, one of septicemia occurring after abortion, was treated in this manner, but the patient nevertheless died. Davis expressed the belief that this method of treatment must be employed early, in connection with stimulating agents, and we may then hope for a good result in a small number of cases if they are seen promptly; while Baldy seemed to think that the death of his patient resulted from the administration of the serum. He states that while it is possible that death occurred by coincidence after the administration of this treatment, he will nevertheless in future use the serum, if at all, with the utmost caution and distrust.

The contribution to this symposium made by Shober consisted in a series of twenty-one cases collected from the *Lancet* and *British Medical Journal* during 1896. Shober concludes that to obtain the best results it is of prime importance to obtain reliable serum, that the case should be one of unmixed infection, that the injections ought to be commenced upon the onset of symptoms, and, finally, that it is highly important to employ intra-uterine and vaginal treatment in connection with the serum treatment.

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#### POISONING BY QUININE.

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In a number of issues of the THERAPEUTIC GAZETTE we have called attention in its editorial columns to the fact that quinine is one of those drugs which very frequently produce untoward symptoms in patients who are unduly susceptible to it, and the development of curious circulatory and skin symptoms which can not be referred to any ordinary cause will often be found to be due to quinine

which the patient had prescribed for himself or herself. The number of cases in which quinine has produced symptoms varying in severity from gastric disorder with headache and deafness, to delirium, coma, blindness, and absolute deafness are a multitude. Sometimes delirium and marked vertiginous symptoms have been produced.

On the other hand, instances in which the drug has been taken in doses large enough to produce death are certainly exceedingly rare. Stillé tells us that Malier has recorded four such cases. In the first the patient suffered from delirium and coma and died on the second day; in another by Guersant, a man and his wife between them took nearly five ounces of the sulphate of quinine within the space of eight or nine days, the husband dying but the wife recovering. The smallest dose of quinine which has produced death is probably that recorded by Baldwin in *The American Journal of the Medical Sciences* for April, 1847, in which a child of six years died from taking eight grains of quinine in two doses, after an interval of three hours preceding the second dose. In all these cases it is interesting to note that the symptoms found at the post mortem examination were identical with those found in animals which died from large doses of quinine. On the other hand enormous doses of quinine have been taken without fatal consequences. Thus Guersant has recorded the case of a lady who took 600 grains within the space of a few hours, and Dietl gave a woman with epilepsy no less than 120 grains a day, this dose being arrived at by gradually increasing doses. Another case is recorded of an old woman who used 10 grains of quinine every two hours until 100 grains had been taken, without any bad effects having been produced. Our attention has been called to this matter by the report of a case by George Gresswell in the London *Lancet* for May 1, 1897. The patient was a woman of forty-seven years, just past the climacteric, who had, fortunately for herself, vomited about a quart of what she had taken for her breakfast after taking the poison. The history revealed the fact that the patient had taken two teaspoonfuls of quinine at the very least and shortly afterward seemed to be in a fit. Her hands and face were extremely pale, the pulse was quick and irregular, fluttering, small, thready, and feeble. The pulse was 120 a minute. Six or seven hours after the poison had been taken the patient was still speechless and quiescent, but not wholly unconscious. Long after consciousness had

returned and the patient's condition had improved her deafness was very marked, the pupils were contracted and reacted to light very slowly. Three days after the quinine had been taken an examination of the patient showed her pulse to be 72, her heart's action still feeble, and the presence of a slight pre-systolic mitral murmur. The deafness entirely left her.

Cases in which such large doses of a common drug such as quinine are taken with distinctly deleterious results are of very considerable interest, and for this reason we have thought it wise to call attention to the case recorded by Gresswell.

#### INTRAPERITONEAL DRAINAGE.

The question of intraperitoneal drainage is exhaustively considered from a clinical standpoint by Dr. John G. Clark, in the *American Journal of Obstetrics* for May, 1897, his conclusions being founded upon a critical review of seventeen hundred cases of abdominal section. Considering in the first place the subject of drainage in cases not primarily infected, it has been shown that if there has been excessive traumatism, blood and serum may accumulate in the dependent pockets and become encapsulated. This blood, however, does not lose its vitality immediately, but remains actively germicidal. Of one hundred ovarian cases but one was complicated by the formation of ovarian abscess after operation. In one hundred similar cases which were drained eight such sequelæ occurred. This tends to show that coagula rarely suppurate even though left to the care of a disabled peritoneum.

Experimental studies show that when an infected material which is difficult or impossible of absorption is introduced into the peritoneal cavity, peritonitis invariably occurs. The toxic effects are virulent and rapid in proportion to the injury to the peritoneum. It is consequently clear that the introduction of a foreign body into a peritoneal pocket would make a dangerous communication with the skin of the abdominal wall.

The streptococcus pyogenes is the most virulent organism, next comes the staphylococcus aureus, while the staphylococcus albus is the least harmful. The strict localization of the great majority of stitch abscesses, however, proves that the growth of the aureus—the common organism—is easily inhibited. Infection with the strep-

tococcus, however, is commonly followed by marked septic symptoms, often terminating in death. The staphylococcus albus excites very slight reaction, although exceptionally it may produce a fatal peritonitis. The colon bacillus is also mildly toxic. It is nearly always found in perineal operations, though these cases run almost without exception a favorable course. The air organisms usually found in the projecting end of the drain for a short distance below the surface give rise to no reaction.

The danger of infection from the drainage tract is greater after the first removal of the drain than immediately after operation. In a few hours a cement-like fibrinous envelope is formed about the drain, binding the adjacent peritoneum and gauze together in the closest apposition. Attempt to remove the drain is extremely painful and may tear adhesions. In one instance fatal hemorrhage resulted from dislodgment of ligatures. During the process of organization, usually about the fifth day, the layer of fibrin in contact with the gauze degenerates, and the close band of union between the gauze and the peritoneum is dissolved. Large drain cavities are likely to refill with serous and hemorrhagic fluid after the removal of the drain; the abdominal opening may then become closed, thus preventing the escape of the infected fluid, when if it is not liberated by incision or dilatation of the drainage tract it may rupture into the general peritoneal cavity.

Clark considers the establishment of communication between intraperitoneal devitalized clots of blood and the exterior extremely hazardous. He holds it is much safer to allow small encapsulated collections of blood, like those found after the early rupture of ectopic pregnancy, to be disposed of by the means at Nature's command. Where these collections show signs of infection, or where there is danger of secondary rupture from further growth, if they cannot be removed from above Kelly's plan of puncturing and evacuating through the vagina should be followed. After operation the infection of the sac is prevented by the disinfectant properties of the normal vaginal secretion. In a recently ruptured case the conditions are different. There are free clots in the peritoneal cavity which if infected will cause death. Under such circumstances an abdominal operation is the only available course to pursue.

Considering drainage where infectious matter was supposed to be present during the

time of operation, it was shown that the pelvic accumulations of pus rarely contain active organisms at the time of operation. Of forty-four specimens staphylococcus albus and aureus were found once in culture. Fifty-six uteri were examined; in none of these were organisms found in culture. Schauta records 144 cases, with streptococci and staphylococci found in four, hence it is clear that infection of the peritoneum from the diseased area at the time of operation is not likely to occur, as the initial infecting organisms have disappeared.

With a view of ascertaining the merits of drainage Clark has selected two series, each of one hundred cases, of pelvic inflammatory disease, in one of which all were drained and in the other none were drained. These series were as nearly alike as possible. Untoward results are recorded, including fatal and complicated cases, in twenty per cent. of the undrained cases, 54.5 per cent. of the drained. There were persistent vomiting, vesical irritation, abnormal rise of temperature, and tympanites in fourteen per cent. of undrained cases and forty-one per cent. of drained; there was suppuration of abdominal wound in eleven per cent. of the undrained cases and twenty-four per cent. of the drained. Post-operative inflammatory deposits are recorded in one per cent. of the undrained cases and eight per cent. of the drained. There was a mortality of six per cent. in the undrained cases and thirteen per cent. in the drained. The tables demonstrate that the danger of rupture in intraperitoneal pus sacs is greatly overrated. There is nevertheless the possibility that virulent organisms may be present. Hence great care should be exercised in preventing the accident.

The higher mortality of the drained cases is largely due to infection through the medium of the drain. Fecal fistulæ followed drainage once in 1700 cases. It was due to pressure necrosis produced by the glass tube. At the end of the third week, the day after the removal of the drain, fecal matter began to escape from the drainage tract. In three other cases gas and small particles of fecal matter escaped from the drainage tract, but in each instance the opening closed before the patient left the hospital.

Russell finds that in at least eight per cent. of cases in which extensive drainage has been used hernia has followed. Buried wire sutures employed to close the abdominal wound have, however, decreased the danger of this complication. When drainage is employed a row

of mattress sutures are buried along the line of incision down to the drainage sac.

Even when suppuration occurs granulations commonly form about the wire and healing takes place rapidly, although sometimes it is necessary to remove the sutures because of persistence of the discharge.

To avoid the sepsis ensuing after drainage the hands should be thoroughly disinfected. Zweifel's rule, that at least three days should supervene after contact with infectious matter before performing an abdominal operation, is a good one. Hemorrhage should be stopped by ligature, twisting and clamping. When oozing persists the peritoneum should be allowed to take care of it. Care must be taken to avoid bruising or injuring tissues. The general peritoneal cavity should be isolated during operation by walling off with gauze pads and non-absorbing cotton bolsters enveloped in gauze. As little of the peritoneum should be sacrificed as possible; bodily heat should be conserved, since it has been shown that resistance to infection is greatly decreased by lowering the temperature of the intestines; care should be taken lest intraperitoneal abscess rupture; the peritoneal cavity should be thoroughly irrigated with normal salt solution after operations during which débris or fluids have escaped into it. When the operation has been prolonged from one to two pints of normal saline solution should be introduced into the peritoneal cavity and the foot of the bed should be elevated eighteen inches for the first twenty-four hours.

If symptoms of infection arise after operation salt solution should be injected into the cellular tissues beneath the breasts. By elevating the pelvis after operation the normal peritoneal current may be assisted greatly by at once draining out the dead spaces. The infectious organisms are quickly carried into the lymph channels and are destroyed before they can increase in numbers, and toxic substances elaborated with the organisms are diluted and prevented from extending their irritant effects upon the wounded area. This posture, however, is not a curative measure after general peritonitis has developed. Free drainage is indicated under such circumstances, as the lymph channels are choked.

Drainage may be indicated in appendicitis when the stump cannot be securely closed or when the appendix is ruptured and has caused an abscess. If operation is performed in the early stage drainage should be omitted. Localized collections of pus in the pelvis should be drained through the vagina, unless

they can be cleanly enucleated. In excision of fistulous tracts leading from the intestine to the abdominal wall drainage may be indicated, since the suture frequently does not hold. In purulent peritonitis drainage is usually advised. Pawlowsky has shown that the lymph channels are choked with the infectious bacteria and inflammatory products; hence, thorough irrigation and free drainage through an abdominal incision are indicated.

As to the method of drainage, one or more strips of plain sterile gauze, doubled backward and forward like the folds of a fan, should be packed in; it should be lightly withdrawn and cut off as soon as the external end becomes dry. By the fifth day it should be entirely removed. When a second set is packed great care should be observed not to break up adhesions. The pelvis is most safely drained through the vagina. These drains are left in place five days and are replaced by a fresh strip of gauze, if it is necessary to keep the cavity open. To do this the patient should be placed in the lithotomy position across the bed and the vaginal opening exposed with a Sims speculum.

This contribution of Clark's, voicing, as it doubtless does, the opinions of Dr. Howard Kelly, is the most valuable and convincing paper which has appeared upon the subject. His conclusions are founded on years of faithful laboratory and bedside study, and are proven by the tabulations and statistics which are given.

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## Reports on Therapeutic Progress

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### *THE TREATMENT OF TYPHOID FEVER IN CHILDREN.*

F. GORDON MORRILL, of Boston, contributes an article on this comparatively rare affection of childhood to the *Archives of Pediatrics* for March, 1897. He believes that there can be no doubt of the necessity of adequate feeding, whether the case is that of an adult or child; and experience has therefore proved that milk is the safest and most convenient form of nourishment as well as the most grateful to the child, whose anorexia is complete, but whose thirst is fortunately great, during the acute stage of the fever. It should be given every two or three hours in four-ounce portions (less to very young children), and it is seldom necessary to dilute it, unless during temporary attacks of nausea or vomiting (common enough in typhoid), when the addition of lime-water or Vichy and the ad-

ministration in small but frequently repeated doses are indicated.

Sleep is often disturbed, and advantage should be taken of the fact to give milk during the night as well as the day. In this way a child five years old will take from eighteen to thirty ounces in twenty-four hours, and older ones in proportion, up to fifty ounces, which seems to be about the average limit of their capacity. Should nausea and vomiting be persistent, in spite of the measures described above, withdrawing the milk entirely and substituting egg-albumen water in teaspoonful doses (to which a few drops of brandy may be added) seldom fails to promptly relieve a trouble which, as a rule, lasts a day or two only at the most.

In cases where there is any marked degree of prostration stimulants are of the greatest value, and their immediate effect on the pulse and general condition of the child is pleasant to witness. Brandy in drachm doses *ter in die* is often sufficient for a child, although the writer has known eight times this amount to be given in twenty-four hours. He believes that a majority of all children with typhoid fever are distinctly benefited by the judicious use of alcohol; and of forty odd cases which entered his wards during the past autumn seventy per cent. were given brandy in amounts varying from one drachm three times a day to two drachms every two hours, at some period of the attack. The largest quantity was given during the acute stage of a second relapse, and the patient recovered.

Cold water is often craved and may be given pretty freely in cases where an ordinary quantity of milk fails to quench the thirst; but if there is the slightest difficulty in adequately nourishing the child, thirst must not be wasted in this way—the milk is to be insisted on.

During the acute stage of the fever there is less danger of digestive trouble if a milk diet is rigidly adhered to; but as soon as the temperature becomes normal, or assumes a low range, or sharp morning remissions, together with the patient's improved aspect, which signal the speedy attainment of convalescence, some predigested form of starchy food and somatose (which he has used with beneficial results in a number of cases) should be added to the diet. The liability to reinfection must be borne in mind (seventeen per cent. of one hundred recovered cases at the Children's Hospital have had relapses), and whether the patient's improve-

ment is followed by recovery, or merely precedes a few days which intervene between it and a relapse, an increase of nourishment in proper form will hasten the advent of health, or get the child in better condition to stand a fresh siege. When convalescence (slow and tedious in the mildest cases) is fairly established, a diet appropriate to the age of the child may be safely prescribed, and its ravenous appetite nearly if not quite satisfied.

The author has never seen the Brand method employed, and has had no experience in any special form of medication in the enteric fever of childhood, which tends to recovery, and runs a very close second to frank pneumonia, as a paradox, when its results are compared with those of the same disease in adults.

In the early stage, if there is constipation, calomel, both as a purge and intestinal disinfectant, may be given. It can cause no mischief (even in the massive European dose), and may be safely used. One-tenth of a grain every hour is usually enough to produce a result in eight or ten hours. Should the bowels remain inactive after a first thorough evacuation, glycerin enemata may be given every other day. If diarrhea is present in the early stage, calomel may still be given before employing other remedies to check the trouble, which so far as he has observed yields more readily to salicylate of bismuth in five- or ten-grain doses than to any other drug which does not contain opium.

To reduce a high temperature which is poorly borne, cool bathing may be employed; but the results are very temporary, and the average drop in the temperature ( $1.5^{\circ}$  F.) hardly compensates for the extra work involved. Occasional doses of lactophenin are very effective and do no harm, so far as his experience goes, in any case where there are not obvious contraindications to its use. Lactophenin will produce an average drop of  $3.5^{\circ}$  F. in four hours. These figures are taken from careful records of the temperature in sixty-five instances in which the drugs were used. Restful sleep may often be obtained in this way. Children vary widely in their ability to bear hyperpyrexia, and on several occasions he has observed one with a rectal temperature of  $105^{\circ}$  F. sitting up in bed and amusing itself with books or toys.

When the first sound of the heart is soft, and alcohol fails to regulate a weak or irregular pulse, digitalis is most useful. When dis-

turbed sleep is not due to a high temperature, a five-grain dose of trional acts admirably as a hypnotic. Aside from the remedies above mentioned he has found little use for drugs in average cases.

The most frequent serious complication which one is called upon to treat is that which results from the intestinal lesions failing to heal as is customary. Hemorrhage in a child varies from very slight loss of blood with each discharge, which may continue for days, to copious and fatal bleeding of which the thermometer may give no warning whatever. In case of any considerable hemorrhage, the foot of the bed must be raised, ice-bags applied to the abdomen, and gallic acid, opium, and lead given by the mouth, or ergotin by hypodermic injection. Injections of a normal salt solution into the cellular tissue may also be tried where marked prostration and anemia are observed. Perforation, if in a position to cause general peritonitis, is fatal, and nothing more than a free exhibition of opium is indicated, unless some bold surgeon can be induced to do a laparotomy. Bed-sores are rare and easily prevented. They would be far more common, as would hypostatic congestion of the lungs, if children did not frequently change position of their own accord.

Acute delirium is rare, but forcible restraint, or a "reminder" in the form of securing one or both hands to the frame of the bed, is occasionally required. Ominous nervous symptoms (strabismus, somnolence, retraction of the head, intense cephalalgia) appear in rare instances, and often vanish so promptly as to preclude the possibility of their having been due to organic changes. Mental disturbances almost invariably tend to entirely disappear, and call for no special advice or treatment. Retention of urine is rare, but daily percussion of the suprapubic region should never be omitted in cases where there is any suspicion of a lack of intelligence or care on the part of the attendants.

Diapers and bed-linen must be carefully looked after. They should be soaked in a 1-to-40 solution of carbolic acid for six hours, then boiled, and washed in vessels kept especially for this purpose. Discharges which are received in bedpans are to be covered with a 1-to-20 solution of carbolic acid, and after being thoroughly broken up are to stand twenty minutes before being emptied. The hopper and bowl of the closet should be washed in 1-to-20 solution daily. The nates should be carefully wiped with a 1-to-40 solu-



tion after each discharge, and the cloths with which this is done treated in the same way as the diapers. Rubber covers should be placed under the sheet on which the patient lies, and carefully washed off with a 1-to-20 solution if they become soiled. Thermometers should be carefully disinfected as well as washed each time the temperature is taken. The attendants should refrain from eating or drinking while in the immediate vicinity of the patient, and should wash their hands and use a nail-brush several times a day. The remains of food or drink which are brought from the sick-room should be thrown away, and all eating utensils washed in a 1-to-40 solution of carbolic, then immersed in boiling water, before they are allowed to return to ordinary use. All articles of clothing which come in contact with the patient must be disinfected and washed apart from those of other members of the household. Mattresses should be aired in the sun for several hours daily for a week after the patient recovers. When one reflects upon the infinite variety of ways in which typhoid bacilli may be carried (furniture, food, drink, utensils of all sorts, and in the air itself under certain conditions), it is a matter of surprise that the disease is not more prevalent—as it doubtless would be if the micro-organism (like that of diphtheria) did not require a special soil in which to flourish and prove its virulence.

#### THE TREATMENT OF FURUNCULOSIS.

In the *Journal des Praticiens* of January 23, 1897, ROBIN recommends the following treatment for boils:

The skin is first washed with water and pure soap, and afterwards the following prescription made up into three cachets is administered:

- ℞ Sublimed sulphur, 2½ drachms;  
Powdered camphor, 30 grains.

As soon as a point of redness appears in the skin a small compress is applied over it, which will often abort the boil. If the boil has already actually formed the complete evacuation of its contents is needed, and after it is opened the following should be applied to it:

- ℞ Sublimed sulphur, 2½ drachms;  
Powdered camphor, 2½ drachms;  
Glycerin, enough to make a paste.

After this has been applied for twenty-four hours the part should be washed with boric-acid water and atomized with a 1-to-100 solution of carbolic acid, and then the application of the sulphur paste should be repeated.

#### PURULENT OPTHALMIA OF THE NEW-BORN.

The New York *Medical Record* contains an editorial on this important and ever interesting subject in its issue of March 13, 1897. In its course it points out the well recognized fact that of the many dangers attending the newly-born infant ophthalmia neonatorum is the most to be dreaded. It is stated that one-third of all the blind in Europe become so from this cause. Its early recognition and unremitting treatment are of the utmost importance. In every obstetric case the physician should gently separate the lids of the infant, to assure himself definitely of the presence or absence of any eye discharge. Infection from the maternal passages manifests itself almost invariably by discharge on the third day, both eyes being affected as a rule. Discharges appearing at a later period usually arise from soiled hands, towels, or sponges; and only one eye may be primarily attacked. This conjunctivitis is never due to strong light or cold, as is popularly supposed, but has a definite specific origin.

Following a discussion of the Medical Society of Breslau concerning Crêdé's method of treating such cases with the aqueous solution of nitrate of silver (one grain to a drachm of distilled water), twelve thousand question blanks were sent out to physicians, with results that form an important contribution to the subject. These blanks were distributed throughout Germany, Austria, Switzerland, Belgium, and Holland. Reports were returned giving statistics of eye disease in 302,971 new-born infants. Of these, 1938 suffered from ophthalmia neonatorum. In Germany, sixty per cent. of eye disease was of this nature; in Austria, eighty per cent.; and in Switzerland, Belgium, and Holland together, ninety per cent. In all these cases the characteristic condition appeared within five days in seventy-six per cent. of the infants under observation. The discharge began after the fifth day in twenty-four per cent. In one-fourth of the entire number of cases one eye was attacked primarily; in three-fourths both were affected simultaneously. Seventy-one per cent. were completely cured. Nine per cent. discontinued treatment. Twenty per cent., or one-fifth of the 1938 cases, retained permanent lesions of more or less severity.

This twenty per cent. presented corneal scars, monocular or binocular; and one-half of these permanently damaged infants became totally blind. It was considered they were

brought too late for cure—fifty per cent. of the blind babies were not seen until the ninth day of their disease, and twenty-five per cent. not until the fourteenth day.

Out of one hundred representative ophthalmologists consulted, seventy-nine were in favor of making Cr  d  's method obligatory in routine obstetric practise. It is not difficult, does no harm, and may avert dreadful catastrophe. The eyes are first carefully washed with tepid water, and the lids thoroughly cleansed by means of absorbent cotton. A few drops of the two-per-cent. solution of nitrate of silver are then instilled into each eye. Materials used to wipe away the discharge must be burnt or otherwise destroyed. Twice daily some simple ointment should be applied to the margin of the lids, to prevent them from sticking together. In severe forms, when there is much swelling and a thick discharge gushing from between the lids, the foregoing nitrate of silver solution may be used every six hours. When the inflammatory action subsides, Muskett recommends that weak solutions of alum, sulphate of zinc, and perchloride of mercury be substituted. The astringent lotion may consist of from four to ten grains of alum or from one to two grains of sulphate of zinc to the ounce of water. Either of these may be used with freedom and safety. The mercury solution gives excellent results—one-half grain of the perchloride to six ounces of distilled water. Cold-water compresses give great relief after active treatment.

Should ulceration of the cornea ensue in spite of active and earnest measures, the eserine treatment introduced by De Wecker may prevent perforation in even the worst cases. Four grains of eserine in one ounce of distilled water is the strength usually employed, though sometimes one grain to the ounce is better borne. A few drops are instilled into the eyes six times a day. This treatment is also of value in a form of corneal affection peculiar to infantile purulent ophthalmia, mentioned by Nettleship, in which the cornea becomes rapidly and almost entirely opaque. Marginal ulcers are not so serious as those centrally situated, and sight may be preserved. More than in any other disease, Dr. J. Lewis Smith urges the necessity of employing faithful and attentive nurses, who will carry out punctually the directions given. Two nurses are required, one for day and the other for night duty, since it is essential that the eye be frequently cleansed and the secretion washed away.

#### THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

It should be the duty of every practitioner to place the antitoxin at the head of all therapeutic measures that he may know of for the cure of diphtheria, for it proves its efficacy whenever it is administered early, and in sufficient quantities to neutralize the poison which it is to antagonize. This is the opinion of Dr. DUFFIELD, of Detroit, as expressed in an article in the *Journal of the American Medical Association* of March 6, 1897.

An early diagnosis cannot always be made from the clinical symptoms; frequently a tonsil may be covered with spots like a follicular tonsillitis, and one of the spots be true diphtheria and the case treated for an ordinary tonsillitis, when in reality a true case of diphtheria is developing in a medium that will prove a regular hotbed for the development of the Klebs-Loeffler bacilli.

All cases suffering from sore throat should receive the benefit of the doubt as to whether the case be one of simple or diphtheritic sore throat by a bacteriologic examination, and the earlier such an examination is made, the greater the chance of saving our patient.

The Detroit Board of Health has furnished test-tubes for the making of cultures from suspected sore throats, and the writer believes that if they were used more often the epidemics in Detroit would be reduced.

The dose to be administered at first is a question of importance. He thinks it is better to overdose at first than to give a lesser curative serum. The bulk is the same, whether 500, 1000, 1500, or 2000 units are used, and as the inserting of the needle is always painful it is better to give a full dose early, rather than to have to repeat the injection.

The amount to be used depends upon the length of time the patient has been sick, the extent over which the membrane has spread, and the thickness of the membrane.

As to the antitoxin to use, having tried five or six different makes in the past two years, he has found that which is manufactured by Parke, Davis & Co. most efficacious. Apart from the potency of this brand, he states that he must commend the ingenious manner in which it is marketed, viz., in hermetically sealed glass bulbs, which exclude the air and keep the serum strictly aseptic.

From the charts he exhibited it could be seen that when a dose was given of sufficient strength the action on the toxin producing the constitutional symptoms—namely, fever,

high pulse, and great prostration—was prompt and effective; the fever being reduced rapidly. Laryngeal cases recovered slowly, but showed marked improvement after each injection.

Strange as it may seem, the serum varies in strength, different manufacturers furnishing the same number of units in various bulks, and many brands containing a less number of curative units than claimed. Such brands are to be avoided. The most concentrated serum is, he thinks, the best to use, as there are rarely any bad results from its injection. It has been noted in several cases that an erythema or urticaria develops around the point of injection. None of the severe symptoms as noted by some have been noticed by the writer, though several hundred injections have been given under his direction. Several have had rheumatic pains, but no other symptoms showed themselves, not even an abscess, and their absence was probably due to the great care used in the manufacture of the serum administered.

During the past year there have been 111 cases of diphtheria in Harper Hospital, five of which died. Three of these entered moribund, and one man had been sick six days before entering the hospital, and the action of the toxins upon his heart centers was so great that he died from heart failure, the result of the diphtheritic poison. Some cases where large doses of antitoxin were used close together showed subnormal temperature for several days. There have been six tracheotomies and twelve intubations. There have been many laryngeal cases that were treated successfully merely with antitoxin and inhalations. The youngest case was a child of five weeks, bottle-fed. During the months of October, November, and December there were over seventy cases in the hospital under the author's care, and six in private practise.

The nurses who were on duty were at first immunized with 250 units, later with 500 units, and still later with 1000 units, as the prophylactic effect was better. The nurses were constantly, except when off duty, exposed in an atmosphere saturated with diphtheria. Two nurses took the disease after having been immunized, and one took diphtheria after nursing a man who started with "follicular tonsillitis," but which later turned to a true diphtheria. All the nurses recovered. When the disease was taken by those who had been immunized the attacks were mild.

In all the hospital cases the patients had been sick from two to three days before entering, hence it was necessary to use the strongest antitoxin serum early and repeat the dose in six, twelve, or twenty-four hours, if the growth of the membrane was not checked or stenosis promptly relieved.

The resident physicians have several standing orders that patients receive as soon as they reach the hospital, for they believe in using some medicines that proved useful before the discovery of the antitoxin.

An examination of the throat is made to see the extent and location of the membrane, and the following treatment is instituted:

1. A hypodermic of antitoxin, 1500 or 1000 units.
2. A liberal dose of calomel if tongue is coated and bowels constipated.
3. An ice-collar, worn until all glandular enlargement disappears.
4. A gargle every two hours of hydrogen peroxide two parts, euthymol two parts, lime-water four parts.
5. Membrane to be touched for ten or fifteen seconds with Loeffler solution every three hours. This is composed of:

Menthol, 10 Gm.;  
Toluene, q. s. ad 26 Cc.  
Creolin, 4 Cc.;  
Iron chloride solution, 4 Cc.;  
Alcohol, q. s. ad 100 Cc.

This dissolves the membrane and destroys the Loeffler bacilli *in situ*.

Should the patient be needing a stimulant, the calomel is omitted and whiskey or strychnine administered. Other symptoms are met by appropriate means as soon as they arise.

Cases of laryngeal diphtheria are treated with steam inhalations after being injected. Children with pneumonia complicating diphtheria are put in the oil-silk jackets and kept in an atmosphere of compound tincture of benzoin and other non-irritant inhalations.

The frequency of dose of the antitoxin depends upon the spreading of the membrane and the condition of the temperature.

How soon is a patient to be discharged as cured? The writer has a culture taken from throats each day for three or four days until all Klebs-Loeffler bacilli disappear before he pronounces the cases well enough to mingle with others, for it has been known that the Klebs-Loeffler bacilli may be carried in the throat of a person without danger to himself, and yet be a source of great danger to others.

As a rule the cultures taken after all membrane has disappeared from diphtheritic

throats prove negative after three or four days.

Just how dangerous the diphtheritic bacilli are after the use of the antitoxin remains for the bacteriologist to determine. Where antitoxin has not been used he has known reinfection to occur ten or fourteen days after the primary attack.

Diphtheritic paralysis developed only slightly in two cases, but more severely in another case where all the vital centers had suffered from previous disease. Albuminuria was noted in a few cases, but as the disease predisposes to renal disease the antitoxin could not be held responsible; all these cases cleared up as soon as the poison was neutralized. No secondary infections occurred after the disease was once under control.

#### *REVIEW OF RECENT EXPERIENCES IN THYROID TREATMENT.*

There are very few drugs in the Pharmacopœia for which it can be claimed that they cure the diseases they are given for in the same sense that thyroid preparations cure myxedema. When the cretin, for example, is subjected to thyroid treatment we find that every one of his functions and tissues is the better for it. Thus his appetite, his digestive powers, and his general tissue-metamorphosis are greatly increased, and he grows amazingly. He generally becomes reduced in bulk at first from losing some of his unhealthy fat, but afterwards he gains weight again, his muscular and connective tissues become healthier and more compact, and his skin softer and moister. His brain tissue also gradually improves in quality, and his mind works more freely and assumes a markedly healthier attitude towards both itself and its surroundings.

It was to be expected that the marvelous efficacy of the remedy in these cases would lead to its being tried in other morbid conditions, and we find that this has been so. Indeed, it would seem as if by this time there was scarcely a disease with any symptoms at all like any of those of myxedema which has not been subjected by some one to thyroid treatment.

It may, perhaps, be of interest to pass shortly in review a few of the more recent papers which deal with the effect of thyroid in some of the diseases of childhood and youth, and to see what measure of success they are able to record.

One of the most interesting and seemingly

most successful applications of the remedy is in dwarfing of various kinds. F. Boullenger and Julius Schmidt, following Hertoghe of Antwerp, have been studying its effects on the growth of non-cretinous children who had not reached the height proper to their age.

Boullenger records nine cases from Bourneville's department in the Bieçêtre. Of these, four were idiots or imbeciles suffering also from obesity. They were given large doses of sheep's thyroid (half a lobe every day or every second day), and although the effect in diminishing their weight was only temporary, the way most of them gained in height was most remarkable. In one the gain amounted to 2½ inches in five months. The other five children were also mostly of defective intellect, besides being much dwarfed in stature. In them the treatment caused some increased growth, but not so much as in the others. This may possibly have been partly due to the fact that those of the latter group were older.

Schmidt's cases were four in number, and were children who, apart from their backward growth, were normal both in body and mind. The administration of thyroid tablets was followed by remarkable increase in height. One case gained nearly 4¾ inches (12 centimeters) in a year.

Hertoghe has recently published a number of skiagraphs of the hands of dwarfs of various kinds, and he has pointed out that the state of the epiphysial cartilages seen in these enables one to give a very confident prognosis as to the possibility or impossibility of renewal of growth under thyroid treatment in any individual case.

There are every year taken into the children's wards of the Charity Hospital, Berlin, a large number of very severe cases of rickets. In spite of every care and all manner of treatment (including phosphorus) nearly half of these children die, generally from bronchopneumonia or enteritis. It occurred to Professor Heubner, after reading Lanz's paper on the connection between the thyroid and the growth of bone, that thyroid extract might influence these cases favorably, and during nine months he gave this a careful trial in sixteen cases.

The result of this experiment, however, was almost completely negative, as he records in a recent paper. No change of any kind could be detected in the morbid condition of the bones. Nevertheless, the mortality of the cases under thyroid was distinctly less than that of those on former methods of treatment

(one-third instead of one-half). This is regarded by Professor Heubner as probably due to an improvement being brought about in the general health of the children, which increased their powers of resisting those complications to which they are generally prone. The complications occurred, but the children seemed to get over them more easily. He thinks that although the thyroid treatment of such cases cannot be claimed as a great therapeutic advance, and has certainly no specific effect on the rickety process, further trial may prove it to be of decided use in suitable cases.

A number of skin diseases have been treated with thyroid with very varying results. One of those in which it seems to have been most successful is prurigo (Hebra). Dobrowsky treated eight cases of this affection with very good results. The children were given no other treatment, and they improved rapidly and very greatly. Within a few days the itching was relieved, the secondary eczema subsided, and the child's general health benefited markedly from the recovered night's rest. The parents were all agreed that no previous form of treatment which they had tried had acted so speedily and so thoroughly. The disease relapsed, however, when the thyroid was discontinued. In 1895 cases were published by Gottstein and by Byrom Bramwell, which seemed to indicate that thyroid preparations exerted a specific effect on tetany. The hopes raised by these communications have not, however, been realized. Many cases of the ordinary infantile form, which occur in rachitic children, and are so commonly associated with laryngismus and convulsions, have since been treated with thyroid by a number of observers. In these there was either no improvement whatever, or it was so slight and so long delayed that one could not but doubt whether it was due to the thyroid at all.

Wolfstein writes an interesting if not very conclusive paper on the case of a girl of twelve, with chorea and very scanty urine, who improved remarkably after being given thyroid tablets (one to three daily). The urine increased in amount at once, and the choreic movements rapidly subsided.

Cases of idiocy of various kinds have been frequently treated with this remedy; but the universal experience seems to have been that practically no improvement of the intellectual powers has resulted. In some instances, however, considerable benefit in the way of bodily growth and lessened obesity has been

observed by Boullenger, Dobrowsky, and others. In those cases which are accompanied by convulsions these are not, as a rule, favorably influenced by the treatment.

Two children with exophthalmic goitre were treated by Steiner with thyroid, without any effect whatever. In nine cases of parenchymatous goitre, however, Dobrowsky found considerable benefit.

From these few abstracts we may gather that if the thyroid substance is not a panacea for all sorts of disease, it is at least a remedy of considerable power, quite apart from its action in myxedema. Its effects are certainly worthy of further careful clinical investigation; and we may hope that a more intimate knowledge of them may lead to its being found a very useful addition to our therapeutic resources.—*Pediatrics*, March 15, 1897.

#### THE THERAPEUTIC VALUE OF NEBULIZED FLUIDS.

F. T. ROGERS, in the *Atlantic Medical Monthly* of March 20, 1897, contributes an article with this title. After describing the nebulizers usually employed he tells us that he can recall numerous cases where the inhalation of the nebulized solution of various antispasmodics promptly relieved asthmatic paroxysms, and with greater ease of application than was possible by the ordinary method of fumigation. Of late years the writer has not seen this disease in his practice, but has had ample opportunity in his own family to test the efficacy of the treatment.

The following solution, nebulized and inhaled, has given the writer the greatest satisfaction:

℞ Antipyrin, 15 grains;  
Pyridine, 1 drachm;  
Sodium nitrate, 2 drachms;  
Tincture belladonna,  
Tincture lobelia,  
Tincture stramonium,  
Tincture ipecac, of each 5 drachms;  
Glycerin, q. s. ad 4 ounces.

Relief has been instant and prolonged, and in two cases of periodic hyperesthetic rhinitis with asthma the solution used in one of the hand nebulizers has proved efficient and has not had the usual loss of efficacy upon repeated trials which so commonly is found with almost any antiasthmatic mixture.

The systematic use of the nebulizer with forced inspiration offers to the asthmatic a double value of exercise and medicine.

Every man, whether engaged in general or

special practise, is likely to be asked at some time to quickly relieve the hoarseness resulting from an acute or subacute laryngitis, and more frequently that due to its chronic form. The use of cocaine in spray followed by the topical application of nitrate of silver or chromic acid is the classical treatment and is the most efficacious in the majority of cases, but Rogers has also gained excellent results by the use of a nebulized fluid containing these drugs, and it has the great advantage of producing quite as much effect on the mucous membrane of the larynx, without the ofttimes distressing spasm which results from applying a caustic solution.

In cases of public speakers, singers, or actors, it has a further advantage—the possibility of auto-application; and when tried just before the effort of speaking or singing is much more efficient than is possible for a topical application to be when made at the office several hours previous.

In acute coryza—that is, in certain cases—the effect the writer has gained from the use of a four-per-cent. solution of antipyrin has been marvelous, and the contractile effect upon the engorged mucous membrane is not only quite as persistent as that of cocaine, but has none of the disadvantages of that drug.

Too many of the abortive forms of treatment for colds depend entirely upon cocaine for their efficacy, and the danger of toxic effects and even the formation of the drug habit are powerful reasons why this drug should not be used.

#### *SOME USES OF CHLORAL HYDRATE IN THE DISEASES OF CHILDREN.*

In *Treatment* of March 11, 1897, SUTHERLAND says there are some drugs the dangers of which are so emphasized that their good qualities are apt to be lost sight of. One of these is chloral hydrate. In this communication it is not proposed to advocate the indiscriminate use of the drug, but to show that when employed in suitable cases, at the proper time, and in doses sufficient to produce a definite effect, it may prove of value. The method of administration will be given in detail in the accompanying histories. It is essential that the drug be absolutely pure, and that the patient be kept in bed and carefully watched when full doses are being employed. When these precautions have been taken the writer has not found any bad effects follow, either immediate or remote. The

appetite has not been interfered with, the intestinal functions have not been disordered, signs of cardiac failure have not occurred, and the drowsiness and lassitude produced by full doses have soon passed off when the drug was stopped. It may be administered alone, or when cardiac complications exist with tincture of digitalis, or in some cases it may be advantageously combined with bromide of potassium or ammonium.

The following case illustrates the effect of chloral in epilepsy: The patient was a girl, aged eight years, who up to the onset of the first fit in August last had enjoyed good health. There was a history of epilepsy on the mother's side of the family, but no other cause could be assigned for the patient's illness. At first the attacks were few in number and of short duration, resembling those of *petit mal*. In the course of the following four weeks the fits increased in number and severity. They occurred both by night and by day, and during an attack the patient was unconscious for two or three minutes, clonic movements were present, affecting the left side chiefly, and sometimes the urine was passed involuntarily. The treatment during this period comprised arsenic, bromide and iodide of potassium, and strychnine, but the fits continued steadily to increase. The patient was then ordered six grains of potassium bromide and six grains of chloral daily, in three doses, and this was quickly followed by a marked diminution in the number of fits. At the end of a fortnight there was a slight increase in the frequency of the attacks, and the dose of the medicine was doubled. This was again followed by a good result, and at the end of eleven days the medicine was stopped. The patient was put on small doses of potassium bromide, digitalis, and arsenic. Almost immediately the fits recurred with greater frequency, amounting to as many as twelve in one day, and increasing doses of the bromide had no effect in checking them. For the twenty-five days before the chloral was commenced the number of fits was 150; for a similar period during which chloral was used the number of fits was 45; and for a similar period after the chloral was stopped the number of fits was 142. The fits had been steadily increasing in number and severity up to the time that the chloral was started, and after it was stopped they again increased until their number and severity was greater than at any previous time. This condition of affairs persisted, although the potassium bromide was increased to sixty

grains daily. As the patient's general condition was very much worse it was decided to try stronger measures. Sixty grains of potassium bromide and thirty of chloral were ordered to be given in three doses at intervals of six hours. On the following five days the same medicine was continued in slightly lessened amount—fifty grains of bromide and twenty-five of chloral. The number of fits decreased rapidly under this treatment, the total during a period of nine days being twenty-four, while the number during the similar period immediately preceding the chloral treatment was ninety-four. As a precautionary measure the bromide and chloral in the above doses were repeated at intervals of three or four days during the next fortnight, but whether this was necessary or not it is impossible to say, as the last fit occurred on the ninth day of the chloral treatment, and a period of four months has elapsed since then without any recurrence. The patient's general health is excellent at the present time.

The following case illustrates the effect of chloral in progressive chorea: A girl, ten and a half years old, developed chorea, which continued to increase in severity for a period of two months. During the first month no advice had been sought, but during the second she had been treated with arsenic, strychnine, massage, with full diet, a moderate amount of alcohol, and rest in bed. At the end of that time the patient was getting worse instead of better. The cardiac action was rapid and somewhat weak, and a systolic murmur of mitral origin was present. The movements were general over the trunk and extremities, the emotional and intellectual centers appeared to be more unstable, and the exhaustion was more marked. More active measures were therefore called for. The amount of stimulant was increased to four ounces of brandy daily, and ten grains of chloral was ordered every four hours. Four doses were given, securing about twenty-four hours' sleep and rest to the patient, and then the chloral was resumed in ten-grain doses twice a day. On the third day after commencing the chloral it was definitely noted that the movements were less violent and less continuous, and that the cardiac action was slower and stronger. On the sixth day the brandy was reduced to one and a half ounces, and the chloral to one dose of ten grains daily. On the eighth day the jerking had practically ceased, and coordinating movements of the limbs could be carried out with

precision. The chloral was discontinued five days later, and the patient allowed out of bed.

The following case illustrates the effect of chloral in the paroxysmal dyspnea of asthma: A boy, aged three and a half years, had suffered from bronchitis and asthma for six weeks, there being severe and prolonged attacks of dyspnea at night. On examination of the chest there were heard numerous catarrhal sounds, and expiration was prolonged and noisy. The breathing during the day was comparatively easy, but at night, usually about 2 A.M., he was awakened by a sudden difficulty in breathing, which persisted for an hour or two, and was asthmatic in character. This was repeated on each of the five following nights, being unaffected by treatment with carbonate of ammonia and iodide of potassium, medicated steam inhalations, stramonium fumes, etc., although the bronchitic signs had considerably diminished. These medicines were then stopped and the patient was ordered ten grains of chloral and five minims of tincture of digitalis twice daily. The following night passed without an attack of dyspnea. The medicine was continued for a week and then stopped, as there had been no recurrence of the asthmatic seizures. During the following fortnight he made good progress, was up and about, and had no attacks of dyspnea. Later on he caught cold, and the breathing again became very labored at times. After the acute symptoms had subsided he was again ordered chloral, ten grains every six hours if required. It was found, however, that one, or at most two, doses daily were sufficient to ward off the acute attacks, and after a fortnight it was discontinued. When seen some weeks later he had not had any further attacks of dyspnea, although the breathing was still asthmatic in type.

These affections resemble each other in being associated with an unstable condition of the nervous system, which manifests itself by some disturbance of function. This disturbance by repetition leads to the production of a vicious habit which it is difficult to cure. It is probable that no single drug is suited to all cases of this description, and in the writer's experience chloral is found serviceable in some cases. The best method of administration would appear to be to give the drug at first in full doses so as to break the habit as quickly as possible, and then in doses sufficiently large to keep the evil tendency in check.

*UNNA'S DRESSING.*

In the Philadelphia *Polyclinic* of March 20, 1897, IDE describes the various uses of Unna's dressing, and tells us what it is and what it can do. Its chief value is for chronic ulcers and sprains or eczematous patches with induration.

Unna's dressing, when completed, consists of a combination of Unna's mixture, or paint as the writer prefers to call it, and gauze bandages in layers, the bandages forming the basis, the paint, which hardens as soon as it becomes cold, impregnating the gauze and being built upon it. The paint is a white mixture which, when cold, resembles very closely the white rubber of which syringes, hot-water bottles, etc., are made. It is of a spongy, elastic consistency, and when heated becomes fluid. The formula according to which it is prepared is as follows:

Gelatin, 4 parts;  
Water, 10 parts;  
Glycerin, 10 parts;  
Zinc oxide, 4 parts.

The gelatin and cold water are put together, in a basin, over a fire, and when the gelatin is thoroughly dissolved in water (there must be no lumps) the other constituents are added, the zinc oxide being added slowly and stirred in thoroughly. The writer always has his made and poured into a quart pail to cool, in which he carries it about, keeping it covered. The zinc oxide is soothing to the skin, especially when the dressing is applied over a chronic eczema. The gelatin gives the paint its adhesive quality, forms its basis, and imparts elasticity to the finished dressing, thus enabling it to exert an even compression. The glycerin has a dehydrating effect upon edematous tissues. Sometimes, as a result of this action, swelling is reduced very rapidly, fluid coming from the tissues and oozing through the dressing. Besides the paint, a supply of gauze bandages and a wide paint-brush are necessary. The gauze bandages can be made from cheese-cloth by drawing threads, and cutting along the line thus made. Two and a half inches make a convenient width for the bandages, and the brush which the writer uses is three inches wide.

The dressing is applied as follows: The limb is scrubbed with soap and warm water, and after being dried is rubbed over with alcohol. When this has evaporated the limb is ready for the dressing. In the meantime the pail of Unna's paint should have been placed over a fire in a hot-water bath, which can be improvised anywhere from a tin or

agate basin. After the paint is melted it is ready to be applied; but do not apply it too hot or the patient will object strenuously. One should test the degree of heat by painting the palm of his own hand. 'Ide always removes the paint, with its hot-water bath, from over the fire when he begins the application, replacing it if it begins to harden before he finishes. With the brush a layer of paint is applied all over the limb, with the exception of the ulcer (if one be present), and over this one layer of gauze bandage is placed in sections, as in any other case, with the one exception that it must be laid flat all the way. There is one rule which must be faithfully adhered to in the application of this dressing, and that is to have no wrinkles at any point in the bandage. Where the bandage begins to wrinkle we must cut it off and begin it flat again. This is why the writer said above that the bandage is to be applied in sections. No section which is more than twelve or eighteen inches in length can be correctly applied. In applying the dressing to a leg he always begins, after the first layer of paint, with a strip of bandage around the foot close to the base of the toes, just as a narrow strip is placed there in applying a plaster-of-Paris bandage to the foot. A second strip is placed around the heel, the middle of which is at the point of the heel, and the ends of which reach to the outer and inner malleoli respectively. Another strip is applied around the heel a little above the first, but overlapping it somewhat. Still another is placed below the first on the bottom of the foot, but overlapping it as did the second. The ends of these other two are brought together at the malleoli, so that they all radiate from the malleoli out around the heel at different levels. In this way the heel is covered in, and then the writer returns to the toes and covers in the foot and leg. In this dressing the bandage is entirely enclosed in the paint after it has hardened, giving it body or basis. A continuous bandage cannot be applied without the production of wrinkles. We can use a roller bandage, however, by pulling it fairly snug with the limb in a horizontal position, the heel resting on a chair or bench, and after as many turns have been made as can be without wrinkles cut the bandage off and start again with the bandage flat. After each section is applied it is painted over with the brush. We must be sure that the bandage fits snugly, making even compression everywhere. If a weak spot is found, where the flesh seems to bulge,



it is to be fortified with a piece of bandage covered with paint. In this manner apply two or three layers of bandage, preceding and following the application of each with a fresh application of the paint over the whole surface. After the last layer of gauze has been applied and painted over, the dressing is covered with a cotton bandage which is left on for twenty-four hours, for the sake of cleanliness, and then peeled off. Under this is found a smooth dressing resembling white rubber, as mentioned above, which is elastic and comfortable and far superior to elastic stockings, each dressing being a perfect fit for the limb to which it is applied. The paint is then washed from the toes and from the skin above the upper edge of the dressing or stocking, and the work is complete. Warm water will remove the paint from the skin or clothing or floor, or anything which is accidentally daubed with it.

The operation requires time and patience, but dexterity is soon acquired. It is a rather dirty job, so that it is well for the operator to have on a rubber apron, and for the floor to be covered by a rubber sheet.

The dressing can be applied to the foot alone, or to the foot and ankle and leg, or to the whole lower extremity; so also to the hand and upper extremity. The upper and lower edges of the dressing must not fit too snugly or end too abruptly, otherwise there will be swelling above or below.

In cases in which there is much edema it is advisable for the application of the dressing to be preceded by massage while the limb is elevated.

Where ulceration is present a wad of cotton is placed over the ulcer, under which is made whatever application may be desired. In such a case when, in the course of the application of the bandage, the ulcer is reached, it is dressed and covered over with a flat piece of cotton and then the dressing is applied over that as if there were no ulcer present. All is left in this condition until the discharge from the ulcer has soaked through the dressing and become foul. Then a window is cut through the dressing, just the size of the ulcer. We begin the window by cutting a very small hole over the center of the cotton which covers the ulcer. This the patient can always locate accurately. The small opening is enlarged by degrees until it corresponds exactly with the size of the ulcer. One may now treat the ulcer as often as indicated, but should not be in too much haste to cut the window. The even compression which presses the parts

surrounding and including the ulcer together and places them at rest does far more good than any application one might be using up to this point. Every twenty-four hours will see the edge of the ulcer nearer its center and farther away from the edge of the "window."

This dressing has superseded the old rubber bandage, which should be thrown to the dogs, for it can but produce (vaso-motor) paresis of the capillaries of the parts over which it is applied. Unna's dressing is far superior to elastic stockings if the patient can afford to have one applied, say once in six weeks or two months.

The most important result which it brings about, from the patient's point of view, is relief from pain and production of comfort from the first. Many a patient has declared to the writer that the first good night's rest he has had for months, and in some cases for years, followed the application of the dressing. For the first day or two it will seem rather tight over the front of the ankle, but it soon stretches a little, the swelling under it disappears, and in two, or at most three, days the patients walk with comfort, provided one cannot induce them to "lie up" and give the limb absolute rest for a time. When the patients can afford to rest it is far better to keep them in bed, or up and dressed with the limb elevated constantly. To this class belong the patients who are treated inside a hospital and in whose cases the most brilliant results are achieved. Those patients who cannot afford to give up all their time to treatment can keep on with their work, and in such cases the improvement is constant and progressive and encouraging, though not so rapid as in the cases which can be kept under control all of the time. The writer remembers the case of a butcher who stood on his feet many hours each day, and yet the improvement was steady. In the case of people who work during the hot summer weather perspiration will soften the dressing around the foot and ankle, and so necessitate its renewal sooner than in cooler weather.

The most important result effected, from the surgeon's or dermatologist's point of view, is the support of the weakened tissues and blood-vessels, especially the veins, and the great improvement in the circulation brought about by the even and elastic compression. The veins are assisted in reassuming their suspended function; feet which have been cold and blue for years, winter and summer, become comfortably warm and

assume the natural pinkish hue; the tissues are dehydrated both by the action of the pressure and the glycerin; fluids which have been exuded into the connective tissue are absorbed and carried away in the circulation, edema disappears, and the swelling goes down, the dressing becomes loose, wrinkles appear in it, and it soon becomes so loose that it must be replaced by another. Sometimes this is necessary in three weeks, but the average time which the dressing has lasted in the author's experience is four weeks. He recalls, however, the case of a hotel clerk with the alcohol habit, tertiary syphilis, slight cardiac dropsy of the legs, with a varicose condition of the veins, with now and then an attack of subacute phlebitis, in whose case he found it necessary to replace the dressing in less than three weeks during hot weather. When the skin is blue and there have been extravasations of blood from the rupture of small veins or venules, followed by ecchymosis and discoloration by blood pigment, the venous blood is sent along, the pigment is absorbed, and the skin becomes white and soft.

The dressing is soothing. The zinc oxide which it contains gives it this soothing quality, and, in addition to the support which it gives to the blood-vessels, it does away with the stretching of the nerves in the walls of the blood-vessels which causes the characteristic burning pain observed in cases of varicose veins.

#### THE TREATMENT OF BRONCHIAL ASTHMA.

The *Boston Medical and Surgical Journal* of March 25, 1897, contains an article by FREDERICK I. KNIGHT devoted to this subject. After discussing the various views of asthma in regard to its pathology he considers its treatment. He thinks the simplest remedies, and those attended with the quickest relief, if relief comes at all from them, are those which are taken by inhalation. They all act more or less by exciting secretion, and most of them by relaxing spasm also. Some act well in one case, and some in another; and those remedies which have most success are usually combinations of various drugs. Nitrate of potassium, stramonium, belladonna, hyoscyamus, and arsenic are found in variable numbers and proportion in most of the powders and cigarettes in the market. One drug or one combination affects one, and another another; and only trial will decide which is best for any particular case.

If no relief comes from such inhalations, then the milder internal remedies may be tried. Phenacetine and other remedies of its class may give relief. Strong coffee or hot alcoholic drinks may suffice. If necessary we proceed to less simple measures, such as the inhalation of ethyl iodide, or the amyl nitrite, or the internal use of nitroglycerin. The latter drug is very efficient in the relief both of spasm and hyperemia. A large proportion of cases recover quickly on the combined use of potassium iodide and nitro-glycerin. Unfortunately the system soon becomes very tolerant of the latter, and the doses have to be constantly increased.

If still more powerful measures are called for, then those agents must be used which have a profound effect in diminishing the irritability of the nervous system. The hypodermic injection of morphine and atropine is one of the best, and will usually give relief, though the writer has seen a case, which always resisted morphine, yield readily to the inhalation of chloroform. The use of chloral, which often gives speedy relief, is to be avoided, if possible, on account of the very depressing after-effects. The writer again warns against the use of any but the simple remedies for the paroxysm, unless absolutely required.

We now come to the treatment of patients in the intervals, to the treatment of the underlying conditions which, singly or combined, cause the attacks.

The first factor to which the writer has directed attention is the condition of the lungs and bronchi. As stated, a previous inflammatory condition exists in many, according to some authorities in a very large majority of cases. In some we have physical evidence of a chronic bronchitis. It is in these cases especially that the potassium iodide gives so much relief, either as an absorbent or as an alkali, increasing and thinning the bronchial secretion. Certain it is that this remedy when properly given relieves and cures more asthmatic patients than any other one. Sometimes, no doubt, the relief comes from its action on enlarged glands which compress the vagus.

The potassium iodide should be given in doses of from five to sixty grains, if needed, for a thorough trial, unless contraindicated. The syrup of hydriodic acid is sometimes useful, but needs to be given in larger doses than those usually prescribed. The dose should be from a dessertspoonful to a tablespoonful.

This is not nearly so efficacious as the potassium iodide.

In case of derangement of the stomach the writer has found the sodium iodide and strontium iodide better borne. He has lately used the latter a good deal, and finds that it is much more acceptable to the patient. All of the iodides should be given largely diluted, on an empty stomach. The writer usually gives them ten or fifteen minutes before meals. The continued use of the nitrites, either alone or with an iodide, when that is indicated, is of great benefit. Nitroglycerin may be used, but the nitrite of sodium has a more lasting effect. The dose of this drug given in many books is too large, one or two grains being usually enough, and large doses dangerous.

In case of emphysema, strychnine is useful; also expiration into rarefied air.

The second factor on the list is pressure on or hyperesthesia of the vagus nerve. As said, potassium iodide may act favorably on enlarged glands which press on the vagus. The same is true of arsenic, which is also a good nerve tonic and is said to act favorably on the bronchial mucous membrane. Practically arsenic has shown itself of great value. Other nerve tonics are indicated, especially quinine, which in large doses may even abort a paroxysm.

The removal of the direct irritant is possible in many cases, and efficacious in preventing the paroxysms, though hyperesthesia of the nervous system may be a prominent symptom. Feather beds, animals, kerosene lamps, arsenical wall-paper, various kinds of dust, and many other objects, when found to be excitants, may be easily removed; but others cannot be, and yet it may be possible to remove the patient from them, as in the asthma of autumnal catarrh or other less defined climatic or atmospheric conditions. Certain regions of this country are known to be exempt from all of the symptoms of autumnal catarrh, asthma included.

In other cases the atmospheric condition which provokes the attack is not so well defined, and relief may be obtained only after repeated changes. The slightest change in location will sometimes give relief. More patients get relief by going from the country to the city than from the city to the country. A curious feature of the immunity of location is that in time it often fails, and another change is necessary. The author recalls the case of a physician who changed his residence and practise several times during his life, on

account of asthma, and who finally got relief by going back to the place from which he started.

In making any change consideration must, of course, be paid to the probable effect of the climate on other factors—for example, on the condition of the lungs and bronchi and on the nervous system.

Of peripheral origin of reflex irritation the nasal region furnishes a good many cases, so many that the digestive and other important regions have recently been too little investigated. The nasal polyp is easily recognized, and so usually are other morbid conditions which are likely to set up reflex action. Contact of a turbinate bone with the septum may be a source of great irritation, less frequently chronic disease of the turbinates, tonsils, pharyngeal-adenoid, etc. The whole naso-pharynx must be put in as healthy a condition as possible.

The digestive derangements have been in recent years far too little considered. Indigestible food, especially when taken at night, is often the cause of an attack; though other factors may be present, it is this added irritation which determines the paroxysm. The digestive tract is so much under our control that it is very important to regulate the quality and quantity of food and time of meals, and perhaps also to treat some evident morbid condition. The intestinal tract must be investigated, especially for parasites. The sexual system and possible trauma must be considered.

No study of an obstinate case is complete without the consideration of toxemia. Lead and arsenic should be sought, and especially should the lithemic condition be looked for. An antilithic diet, regimen, and medicine will relieve many otherwise incurable cases. The same is true of the appropriate treatment of malarial cases. In cases of renal dyspnea due to uremic intoxication there is sometimes an apparent increase of suffering, due perhaps to spasm of the bronchi, as indicated by sonorous râles; but it is better not to consider these cases under the head of bronchial asthma such as we have been considering.

It will be seen from this brief sketch that many morbid conditions may be concerned directly or indirectly in the production of a case of bronchial asthma, which act singly or combined, and that the treatment should be directed towards the removal of as many as possible of these conditions. The result will be more satisfactory the nearer we get to a removal of all of them.

The more of these factors we can diagnose the simpler may be our treatment. Grand combinations of many drugs either for inhalation or internal use are to be avoided unless single remedies fail. Patent and proprietary medicines, and treatment of patients at a distance without examination for differential diagnosis, must naturally be compound, including everything known to be "good;" but when a physician can have his patient under observation this can often be avoided. In conclusion, the influence of climate is often very subtle, yet if we proceed on the same lines as have been suggested for medicinal treatment, of considering what factors we may influence by change of climate, we may yet often guide a patient successfully. Can we remove him from some direct irritant, as in the hay-fever cases? Shall we find a climate which will fortify or calm a hyperesthetic nervous system? Or shall we (which is perhaps oftenest required) put him in a climate which will act favorably on his bronchial inflammation? If we wish to do the latter, a dry, elevated region is indicated if the bronchitis is moist, but a warm, moist climate will probably be better if the bronchial mucous membrane is dry and irritable. As in all other means of treatment the nearer we get to an exact diagnosis of the exciting and underlying causes of asthma, the more intelligently and successfully will we be able to advise in regard to change of climate.

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*SIXTEEN YEARS' EXPERIENCE IN THE  
TREATMENT OF SYPHILIS BY THE  
HYPODERMIC INJECTION OF  
BICHLORIDE OF  
MERCURY.*

In the *New Orleans Medical and Surgical Journal* for April, 1897, DABNEY contributes a valuable analytical paper on mercury by the hypodermic needle. In its close he weighs the objections and advantages of the treatment by subcutaneous injections.

The objections raised against the method are: (1) Unnecessary pain; (2) subcutaneous infiltration; (3) large indurated and painful swelling; (4) inflammation; (5) abscesses; (6) stomatitis; (7) pyalism; (8) disturbances of circulation and respiration.

That pain does occur in some cases cannot be denied; but as a large majority of syphilitics suffer from partial or complete cutaneous anesthesia, this objection holds good but in comparatively few cases.

In hyperesthetic cases it is hardly admissi-

ble and cannot be recommended. In sixteen years' experience the writer recalls but three cases where pain acted as a deterrent factor—one boy and two neurotic women. In every other case the patients maintained that the pain was less objectionable than the taste of medicines. The addition of alcohol, recommended by some, adds much to the pain and detracts from the efficacy of the bichloride.

Injection of morphine before or in conjunction with the mercury is to be condemned for two reasons: because it in no wise alleviates the pain, which does not reach its acme for three or four hours; and it may lead to the opium habit—highly probable in this class of patients.

What objection there can be to cellular or subcutaneous infiltration the writer is at a loss to understand. We use the loose cellular tissue as a storehouse whence the mercury is slowly given off. The indurations are painful when roughly handled, just as those of vaccination are, though he has yet to hear that objection raised to preventive measures of smallpox, and why should it be a valid objection to curative measures of pox? When the needle is not plunged deep enough, quite an area of inflammation is, in some instances, set up.

It has been the writer's misfortune to cause two shallow abscesses, but in each instance the abscess was due to neglect of asepsis, and not to the injection of the greatest of all known antiseptics. He has also broken off a needle in a man's arm. This needle caused no inconvenience whatever.

So far he has seen no untoward circulatory or respiratory disturbances, unless the increased pulse-rate and the rise in the cutaneous temperature which always accompanies the continued use of mercury could be classed under that head. Ptyalism and stomatitis may unquestionably be produced by the administration of mercury in any manner; but he happens never to have witnessed those lamentable effects in any case treated hypodermically; whereas he has rarely seen a case treated by other methods without them. At Hot Springs tincture of myrrh for the mouth and gums is almost as important a part of the treatment as the inunction of mercury and the large doses of the iodide.

The advantages claimed for this method are: (1) accuracy of dose; (2) exactness in intervals between doses; (3) rapidity of action of medicine; (4) small amount of mercury and the short time needed to effect a cure; (5) the constant, never-ceasing effect of the mer-

cury day and night; (6) the personal supervision of the physician; (7) the certainty of the patient getting the right medicine, of its being properly administered at regular stated intervals, and of his inability to get the prescription refilled, or to give the knowledge to a friend, or sell it to some charlatan; (8) profit to the physician and economy to the patient on account of the saving of the drug bill of four years. The doctor with this method is sure of two very important things: his fee, and his patient's gratitude for his speedy cure—quick delivery, so to speak; (9) absence of gastro-intestinal disturbances; (10) last, though not least, quick diagnosis in questionable cases.

The *modus operandi* is as follows: First, care must be taken to avoid all joints, glands, and blood-vessels. The best sites for the injection are the chest-walls, back, gluteal region, and the upper and outer portions of the arms. The site chosen should be well soaped (green soap) and washed and dried, then rubbed briskly for a few seconds with alcohol. The needle and syringe should be immersed in hot water before each injection. The needle should then be plunged quickly through the skin and well into the cellular tissue, care being taken to avoid invading adipose or muscular tissue (though some authorities advise deep muscular injection). The injection should be very slowly made, care being taken not to use too much force. As soon as the bichloride solution comes in contact with the albuminous serum, the soluble mercuric chloride immediately becomes the albuminate, which is not very soluble, and herein lies the efficacy and safety of these large doses of this highly corrosive poison. By means of this chemical metamorphosis we can store up in the cellular tissue mercury that can be taken up by the secretions and distributed throughout the entire system in such dilution as to do no harm to the most delicate structure. How different is the result, say, when given by the mouth in pill or solution. Here the medicine coming in contact with the daily ingesta may form insoluble combinations and pass through the bowels as an inert mass, or it may, through the presence of malic, lactic, citric, or other acid, form highly soluble or irritant salts, and thus bring on free catharsis, and be swept away before reaching the systemic circulation. One of the most striking effects of the hypodermic injection of the bichloride is the way it tones up old, broken-down syphilitics. This tonic effect is at times so strik-

ingly shown as to cause surprise to the patient as well as to the physician.

This treatment does not entirely do away with the iodide of potash, for this remedy, though it never cures but only subdues, may after be used in conjunction with the injections, especially where the throat, brain, or spine are involved. Wherever mucous patches occur he applies the solid argentic nitrate. Sulphate of copper crystals are highly recommended by many authors, but they are not as quick nor as efficacious as lunar caustic.

The writer feels that he has in this treatment a scientific, accurate, rapid, and absolutely safe method of mercurializing his patients and of keeping them under the never-ceasing influence of mercury as long as a vestige of syphilis remains. He no longer dreads to face a syphilitic seeking his advice, for he feels absolute confidence in his ability to cure him in a definite time.

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#### THE PRE-DIAGNOSTIC TREATMENT OF GRAVE ABDOMINAL DISEASE.

G. SMITH in *Treatment* of March 25, 1897, writes on this very important practical topic and points out that acute abdominal disease cannot always be diagnosed offhand. Often the diagnosis must wait, but rarely is the treatment permitted to wait; and this treatment, directly aimed at the relief of symptoms as it is, may succeed only in aggravating the disease, while it makes diagnosis almost impossible. It is true that with the general public the relief of suffering comes before the cure of disease, and the action of the kindly physician who, seeing pain, relieves it with his morphine syringe, will never be severely condemned. If the patient is thirsty he will have ice to suck; if his heart's action is feeble and rapid he will have suitable medicines and drinks administered by the mouth.

Then comes in the surgeon, who is requested to cure the disease. Now for surgical purposes some sort of diagnosis is desirable; and diagnosis in grave abdominal disease is simply impossible if the patient is narcotized. Also operative treatment is dangerous and difficult in these cases, and it does not add to the too slender chances of success if liquids have been poured into a perforated stomach, or the intestines have been either started into furious action by iced fluids drunk or paralyzed by morphine injections.

What then is to be done? Is it possible in such cases to pursue a course of treatment

which will certainly do no harm, but will probably do good, and which will not obscure the signs and symptoms, but will rather help in their evolution and interpretation?

We will suppose a patient in ordinary health up to the moment of attack; the physician finds him in bed suffering great pain and with the ordinary symptoms of serious abdominal disease. It may be impossible to say whether it is simply colic—intestinal, renal, or biliary—or some grave condition such as obstruction or perforation of a viscus, or even extravasation of blood. The shock may be caused by pain and fright; it is very like true collapse such as might be produced by peritoneal diffusion of the contents of a perforated stomach, or of a periappendicular abscess, or by the rupture of a tubal pregnancy.

The first thing to be done under these circumstances is to administer an enema containing an ounce of brandy or whiskey. The brandy is best given in milk, which the rectum tolerates, and about three ounces of milk is enough. Before giving it the rectum is explored with the forefinger, and the evidence, positive or negative, thus afforded is treasured up towards the diagnosis. As the finger is withdrawn the nozzle of the syringe is inserted, almost by the same act as the examination is made, and the enema administered.

Then the patient is swathed in hot blankets, one being rolled round each leg, and one, pulled under his back, is rolled round his chest. Hot-water bottles are packed around limbs and body. The abdomen is left to be covered separately by some light woolen wrap, which can be easily removed so as to permit of examination of the surface. The attendant now sits down by the bedside of the patient to watch him and to complete the diagnosis; and he ought scarcely to leave his side till the diagnosis is complete.

Meanwhile the alcohol and the warmth are doing their beneficent work. The pulse improves; color comes into the patient's cheeks and lips; excitability and nervousness are diminished; pain is probably lessened; and soon the surface is covered with warm perspiration. No single therapeutic measure with which I am acquainted does so much good in the early stages of grave abdominal disease as rectal injection of alcohol. It is indeed a fortunate thing for the patient that, while the whole of the rest of the intestinal tract is paralyzed and useless, the rectum still retains its power of passively absorbing liquids.

The surgeon sitting by the patient intently

watches the evolution of signs, and uses such aids in palpation, percussion, and especially in auscultation, as he thinks proper. Every individual sign is noted and kept in mind as it is evolved; and it will be surprising if, at the end of half an hour, their aggregation does not permit of a diagnosis being made sufficiently accurate for exact treatment.

The general behavior of the patient is important. In spasmodic colic—intestinal, renal, or biliary—the patient makes a great fuss; he is in acute pain, and he lets every one know it, calling out and rolling and twisting about in all directions. Very differently behaves the patient with visceral perforation; he makes little fuss and no complaint; he keeps his body rigidly still; his arms only does he move, bending and stretching and raising them, while he rolls his head wearily from side to side. Between the two are the intestinal strangulations with their special signs. The condition of the parietes as to tension and distention, spasm or relaxation, is carefully noted, and the movements or quiescence of the intestines are observed. If the intestinal muscle is acting violently there is no perforation, for intestinal paralysis is one of the first effects of diffusion of fluids in the peritoneum. All over the abdomen there is silence to auscultation, save at the seat of perforation, where there are rare and mysterious blowing or rushing sounds. In the parietes we must distinguish between tension and distention, between hardness from reflex or voluntary muscular spasm and hardness from physical stretching, giving each variety its true meaning; and intermittently we percuss, especially over the region of the liver. If there is not much distention, abrogation of the liver dulness is almost pathognomonic of perforation and escape of gas from a hollow viscus or from rupture of an abscess which contains gas—such as an appendicular abscess. If there is much distention, so that bowels may get between liver surface and parietes, this sign is of less value. But the abdomen takes long to distend; the parietes get very tense before they stretch in acute disease.

The sign revealed by auscultation may be of great value. The disk of the phonendoscope is laid on the parietes and moved about from place to place, while sounds are patiently listened for. It must not be forgotten that intestinal sounds are not like cardiac or pulmonary sounds, repeated rhythmically so many times a minute; on the contrary they may occur only at long intervals, and recur with no measurable regularity. To

attempt to describe these sounds would be to go beyond the scope of this paper. It is always possible to be certain of the natural and diffuse sounds in colic; of the exaggerated local and rushing sounds in obstruction; and of the curious general silence with rare and remote noises in perforation. They must be heard again and again, and listened to long, before one can be certain of their meaning.

We shall now be in a position to say whether it is colic or dangerous disease. The final diagnosis may be made with the help of chloroform. The patient is given a little chloroform to inhale; if it is simple colic he greedily inhales it, delighted with the relief it gives; in a few minutes the marked improvement of the patient's condition will almost prove the diagnosis. In perforation or strangulation the patient is not greedy to inhale the chloroform; it may increase the nausea, and it does not cause marked improvement in the symptoms. When we have decided that the disease is no more than colic we may at once give a full dose of morphine and begin the proper treatment, of which no more need here be said. By the time that half an hour has passed the diagnosis will have gone so far that the decision for or against operative interference will have been made. Preparations for operation are rapidly made by assistant and nurses, while the surgeon stays by the patient's side to continue to read the signs and make the diagnosis complete. His aim will now be chiefly to locate the mischief so as to know where to make the abdominal incision. It matters little to the surgeon what has to be done; it matters greatly to the patient that it should be done quickly and deftly; and one essential of speed and excellence of opening is that the parietal incision shall be well placed.

It will be seen that the author places in the front these items of advice: Avoid morphine; give nothing by the mouth; give an enema containing a full dose of alcohol; and apply heat to the patient's body. Then we sit down and watch. As shock passes off the natural evolution of special signs comes on. These we carefully and patiently observe by sight, touch, and hearing, and their interpretation is the diagnosis. But their evolution being slow and complex, and their meaning often obscure, we must wait while they repeat themselves again and again, and not leave the patient's side till solid reasons have been found for a definite line of treatment.

#### TREATMENT OF ACUTE MYELITIS.

JAMES TAYLOR writes on this topic, which is seemingly dealing with a barren therapeutic field, in *Treatment* of March 11, 1897. He thinks that in such a condition the object of treatment will be to prevent, if possible, the extension of the mischief upwards or downwards from its original focus, and also to prevent any of the paralytic effects of the disease from becoming a danger to life. The effects, which are apt to be troublesome and dangerous even if no extension of the original inflammation takes place, are: (1) trophic disturbance; (2) retention of urine, and cystitis leading to kidney affection; and (3) in a minor degree, constipation and abdominal distention. With reference to the first of these it should be recognized from the commencement that very serious trophic disturbance may arise from very slight pressure, and in some cases apparently arises spontaneously. A careful watch must be kept for the slightest appearance of any such change, and the parts on which pressure comes must be carefully and frequently sponged and spirit rubbed into them with the palm of the hand. It is essential in every case of acute myelitis that a water-bed, or at least water-pillows, should be used, and that great care should be taken to avoid anything likely to irritate the skin or permit an abrasion. It has been recommended that the patient should assume the prone position in order to prevent the spinal cord from being dependent. In the acute stage of the illness, however, such treatment is seldom, if ever, possible. It is often most useful in the later stage when the fever and malaise have subsided, and it is of special value if any bed-sore has unfortunately developed. If such a position is advisable it is best to have a prone couch close to the patient's bed, to which he can without inconvenience be occasionally moved for an hour or two at a time.

The second inconvenience, and even danger, which is apt to occur at an early stage is in connection with the loss of control over the bladder. Retention of urine takes place, and the patient may first become aware of the fact that everything is not in order by the dribbling away of urine, the sequel to overdistention. Such a condition is usually spoken of as "overflow incontinence." It is sometimes said that even in these cases cystitis does not occur except as a result of infection by a dirty catheter. This, however, is not correct, for cystitis may occur in certain cases of acute myelitis even before a

catheter is passed. Nevertheless it is of the utmost importance that extreme care should be exercised in regard to the condition of the catheter, and not only should the urine be drawn off, but the bladder should be washed out by means of a solution of a mild antiseptic like boric acid. After a time, if the case goes well, the bladder is likely to regain its power of contraction, so that it is able to empty itself wholly or, more usually, partially, not in obedience to the volition of the patient, but reflexly. Such a condition is spoken of as "reflex incontinence" to distinguish it from the overflow incontinence already alluded to as occurring earlier. Even in this condition it is desirable that the catheter should be passed at least twice in twenty-four hours, and also that the bladder should be washed out, for in probably every case it never empties itself completely. In the stage of complete retention the catheter should be used once in every six or eight hours. It may be occasionally necessary to use it even more frequently.

The condition of the bowels is a third source of possible inconvenience. There is always considerable difficulty in getting them to act, and there may ensue an inconvenient degree of abdominal distention. The constipation in many cases seems to be diminished by belladonna—one-sixth or even one-fourth grain of the extract twice daily, in pill. Enemata are often ineffective, because they are not retained; but glycerin is more efficacious than the fluids, which have to be given in larger quantity. For the distention gentle rubbing of the abdomen may be done. Purgatives also are useful in relieving the distention, but in some cases it may be necessary to pass a tube through the rectum into the colon.

Can anything be done by drugs to allay the inflammation or to prevent it from spreading? Ergot and belladonna have both been recommended, and their use in some cases has been followed by improvement. Strychnine is certainly contraindicated while the condition remains acute. Absolute rest, light fluid diet, careful attention to the skin, the bladder, and the bowels, really sum up the treatment in the acute stage of acute myelitis. Any form of counter-irritation is inadmissible, because of the danger of starting trophic disturbance.

When there seems to be no further danger that the inflammation is extending, iron and quinine may be given in small doses, especially if, as is often the case, some anemia is asso-

ciated with the myelitis. The diet also may gradually be made more liberal, and a little stimulant may be added if the patient takes his food badly. Counter-irritation to the back may now also be employed, and by far the best method to use is that by means of the Paquelin cautery. Several pricks should be made each day by means of the heated round blade on each side of the spine, at and about the level at which the sensory impairment stops.

The reflex action, if no extension to the lumbar enlargement has taken place, will now have returned, and it quickly becomes excessive. It is often necessary to strap the limbs with soft voluminous bands such as knitted woolen shawls, and pillows will sometimes have to be placed between the limbs to prevent them touching and perhaps abrading each other. But as a voluntary action returns the reflex movements become less, and when this stage has been reached massage and passive movements are of considerable use in improving the nutrition of the muscles and in strengthening the various movements in the limbs. As soon as the patient is able to walk a little great care will have to be taken to prevent him from overdoing the exercise. The bladder trouble not infrequently persists even after the patient is able to walk well. When this is the case strychnine in small doses has a very distinctly beneficial influence, but it should be used cautiously on account of the possibility that it may induce a recurrence of the excessive reflex action. In some cases arsenic and chloride of aluminum seem to have a tonic influence on the affected nervous structures, and it may be stated generally that the degree of recovery in many cases of acute myelitis is far greater than one would expect from the nature of the disease and its apparent extent at the onset of the attack.

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#### ON THE ACTIVE PRINCIPLE OF RHUS TOXICODENDRON AND RHUS VENENATA.

FRANZ PFAFF concludes in a very interesting paper in the *Journal of Experimental Medicine* for March, 1897, that as to the rational treatment of Rhus poisoning, it is to be noted that the poisonous oil, as we have already repeatedly stated, is non-volatile. It is very sticky and will cling persistently to parts which may have become contaminated with it. It oxidizes in contact with air and is transformed into a solid resin. But this proc-



ess is a very slow one. This resinification of the oil may be hastened by heat and alkalis, even by a solution of carbonate of sodium; but still the process remains a very slow one. The metallic compounds of the oil, after decomposition, leave again the oil with all its irritant properties. The poisonous oil is soluble in most of the common solvents and fatty substances, but is insoluble in water.

From all the chemical properties just enumerated, the rational indication in a case of Rhus dermatitis would be to get rid of the poisonous oil that may still be on the skin of the affected person as quickly as possible, no matter in what stage the eruption may be.

This can be done by vigorously washing the affected and exposed parts with soap, water, and scrubbing-brush—that is to say, mechanically. As the active principle is very soluble in alcohol and gives with lead acetate a precipitate which is nearly insoluble in alcohol (the copper and iron compounds are also easily obtained as precipitates), other processes may be employed to remove the oil. The exposed parts may be washed repeatedly with fresh quantities of alcohol and a scrubbing-brush; the poisonous oil would be thus removed in alcoholic solution. Or still another way of operating would be to wash the exposed parts with an alcoholic solution of lead acetate. In this case the poisonous principle would be first transformed into its insoluble lead compound and then washed away with alcohol. The washing must be done thoroughly when alcohol is employed, as otherwise the alcohol would only help the spreading. The nails have to be cut short and also perfectly cleaned with the scrubbing-brush. Oily preparations, or anything which dissolves the poisonous oil, if used and not immediately removed, would only spread the poison, giving it a larger area on which to work. This spreading was well seen in one patient's case. The vaselin ointment used in the treatment dissolved the oil which adhered to the point of application, and thus caused the spreading of the eruption. That the proposed treatment does not cure the already inflamed parts is self-evident.

How can the commonly accepted idea be explained that poisoning may occur without actual contact with the poisonous plants when the active principle is a non-volatile substance? The activity of toxicodendron in minute traces may make it possible for a few pollen grains of poison ivy to cause skin eruption; and the few cases of action at a distance, which are so often quoted, may

conceivably be thus explained. But in the writer's opinion it is more than doubtful if ever a case of ivy poisoning has occurred without direct contact with the plant or some article which has been in contact with the plant. The long latent period of the eruption in some cases may obviously render mistakes extremely easy as to the occasion when contact with the plant really occurred.

#### PREPARATIONS OF IRON IN THE TREATMENT OF CHLOROSIS AND ANEMIA.

At a recent meeting of the Société de Thérapeutique, a report of which appears in *Le Progrès Médical* of April 3, a discussion on this subject was opened by M. Bardet, who said that the majority of authors regretted that it had been generalized by including in it the treatment of various forms of anemia, instead of limiting it to chlorosis. M. Bardet, however, was of the opinion that when it was necessary to employ iron preparations the special treatment became the same in chlorosis as in simple anemia. He considered it difficult, in a discussion on therapeutics, to separate chlorosis, properly so called, and the various forms of anemia. It has been well said that in the treatment of anemia the principal indication was to suppress the cause and then the anemia would disappear. But, he said, it was none the less true that the iron treatment of anemia played a great part in therapeutical intervention, and consequently it would be prejudicial to leave out anemia in a discussion on iron treatment. Moreover, he questioned whether it was correct to profess to be able to remove the causes, which were more frequently connected so closely with the effects that it was impossible to make out the precise limits between the cause and the effects.

The value of different preparations of iron had been the subject of much discussion. Some authors had advocated the use of the free metal; others had recommended the iron salts; others, again, had given the preference to organic preparations, and among these several authors had adopted exclusively the albuminates. M. Bardet was convinced that all these discussions were useless, and that all iron preparations were good or bad according to the particular cases, not forgetting that everything depended on the absorption, and that this was itself dependent exclusively upon the digestion; and as this was a most complex phenomenon, varying according to the individual, certain preparations might

prove good for some persons and bad for others. All iron preparations might be tried, and the one that was tolerated by the patient would be the right one.

With regard to the different preparations of iron, M. Bardet preferred hemoglobin, although there was another preparation which he thought should not be forgotten in a discussion on this subject. This was glycerophosphate of iron, which he thought was destined to take an important place in therapeutics. Up to the present time it had not been easy of employment, owing to the difficulty in keeping it. M. Bardet, however, had made use of this salt in anemic persons by combining an organic iron preparation with the glycerophosphate of iron and particularly with the phospho-glycerate of lime. He had employed these combinations for the past three months with the best results.—*New York Medical Journal*, May 1, 1897.

#### MALARIAL HEMATURIA.

In the *New York Polyclinic* of April 15, 1897, KILPATRICK writes on this important subject as follows:

The real cause is undoubtedly malaria, and in this section (Georgia) it is confined strictly to the white race. He has never known a negro to have it.

At the onset the writer finds the symptoms to be as follows: The patient is taken with a chill, not very decided in every case, and of short duration. He may be attending to his duties and is not necessarily confined to bed. At the expiration of these chilly sensations there is a rise in temperature ranging from  $101^{\circ}$  to  $103^{\circ}$ . About this time he desires to micturate, the urine being of a dark coffee color, or perhaps a cherry red, and sometimes very copious. The quantity voided is about half a pint, often less. The patient does not seem to experience any pain while voiding urine other than a dull, aching sensation in the region of the kidneys. The fluid has been submitted to a microscopical examination and found to contain no blood-corpuscles. There is often at the onset intense nausea and vomiting, and at the expiration of six or eight hours, sometimes earlier, decided jaundice and cold feet.

The indications are for purgation and diuresis. The author gives large quantities of warm water; lets the patient drink all he can, and so distend the stomach as much as possible. After a thorough washing in this way he lets him sip very hot water to relieve

the irritated stomach, and places a mustard plaster over the epigastric region. He then receives an enema consisting of a quart of warm water with the yolk of one egg and ten drops of spirits of turpentine. Hot-water bottles are placed to his feet. If vomiting is not controlled by this time, he gives, in capsules, half a grain of cocaine hydrochlorate every half-hour till a grain and a half is taken. The purgatives and diuretics seem to control the temperature. As a purgative he gives from ten to twenty grains of calomel with the same amount of bicarbonate of sodium every hour till he gets copious, dark stools. As a diuretic he uses potassium acetate every half-hour to every hour till the urine resumes its normal color. When this occurs he feels that his patient is safe.

The after-treatment consists in giving three times a day ten drops of a mixture of tincture of nux vomica and Fowler's solution, equal parts. If the patient is very anemic, he adds tincture of chloride of iron. After the skin clears up he gives three or four grains of quinine bimuriate three times daily.

The duration of this affection is very short, but it requires prompt and heroic treatment. The main point is to keep the kidneys and bowels acting freely. His reasons for not using quinine are that it often keeps the stomach upset and that it is so slowly assimilated there is not sufficient time to wait for its action. He uses no hemostatics as the urine, no matter how red, does not contain blood-corpuscles unless there are organic lesions about the kidneys or the urinary tract.

The temperature and circulation will take care of themselves if the system is rid of its engorgement of cells broken down by malaria.

#### BRONCHOPNEUMONIA OF CHILDREN.

A practical article on this topic is contributed to the *Northwestern Lancet* of April 15, 1897, by CARLAW of Minneapolis. After considering the disease from various standpoints he turns to the treatment and gives useful advice. He admits that there is as yet no specific treatment, but thinks much may be done for the comfort and guidance of these little sufferers in their struggle for life. First and foremost is the hygienic management. The child should be placed in a good-sized room, where there are ample facilities for admitting air and sunlight. The cot or bed should not be placed against an outside wall, if the season be winter. Unnecessary furniture would better be removed. The clothing of the cot

should be light, clean, and warm; sheets may be discarded for soft flannel blankets. The child should be attired in flannel nightgown, preferably of the "combination" variety. The bedclothing and nightclothes should be kept clean, and changed and aired daily.

The temperature of the room should be maintained day and night from 68° to 70° F. Free and constant ventilation should above all other things be obtained, and its maintenance be rigidly insisted upon. This is best accomplished by lowering a window from the top, which will allow the free ingress of fresh air. If a fireplace be in the room and in working order, it is well to keep a fire in it, as it is one of the best means of ventilating and carrying off impure air. The air in the room may be kept moist to advantage, preferably with the steam of boiling lime-water. The attendants on coming in from the outside air, if the weather be cold, should warm themselves before going near the patient. The physician should do likewise, and should warm his stethoscope and hands before examining the chest.

Attention to the countless little things which promote the comfort of the little one is most important, such as changing the child's position frequently, drying its skin with a soft warm towel, keeping the mouth clean, etc.—or, in other words, "good nursing." In many places among the poor such hygienic measures cannot be carried out as well as we would desire, but the best possible under the circumstances should be insisted upon, and we must always remember that medicine can never take the place of hygienic treatment.

For those who are artificially fed milk is the ideal food; it should be given with lime-water. It is best to feed the child at regular intervals, say every two hours. Albumen water, made by mixing the whites of two eggs with a pint of water and adding a little salt, will be found very nourishing and may be given ice-cold. Older children should have animal broths in addition to milk. Cold water should be constantly on-hand and the child encouraged to drink freely. Stimulants in severe cases should be given from the first, and good rye whiskey is one of the best forms to administer. It may be given in the egg-albumen water, and its dose will vary with the age of the patient and severity of the disease.

In mild cases a well fitting cotton-batting jacket, lined on the inside with cotton flannel and on the outside with oil silk or oiled muslin, will be sufficient. The chest may be

first rubbed with some stimulating oil or liniment, such as two drachms of oil of turpentine and one drachm of the stronger solution of ammonia, in two ounces of soap liniment. In severe cases where the cough is painful there is nothing that will give the relief and satisfaction of the time-honored flaxseed poultice.

As little medicine as possible should be given, and all medicines of a depressing nature avoided. The bowels may require to be moved at the onset, which may be done with small doses of calomel, but we must be careful in regard to purgatives, especially in cases following measles, as they are apt to set up gastro-intestinal complications.

In the early stage, if the cough is dry and the bronchitis troublesome, as indicated by a preponderance of dry râles, some alkaline cough mixture, as one or two grains of nitrate of potash, with ten or fifteen minims of syrup of ipecac, given in equal parts of liquor ammonii acetatis and syrup, or fluid extract, of licorice, to one teaspoonful, for a child two and a half or three years old. Such cough mixtures should be given freely diluted with water.

When the cough is loose and moist râles more abundant, the ammonium salts will be found efficient. Some prefer the chloride, others the carbonate. When the acute symptoms are present the carbonate is perhaps more indicated. This salt is not only an efficient expectorant, but also a valuable cardiac and respiratory stimulant, all of which actions are indicated in the treatment of bronchopneumonia. It can be combined to advantage with vinegar of squills and given in the fluid extract of licorice, which disguises its taste most efficiently. The dose will vary with the age; for a child fifteen months or two years of age, one grain of the carbonate with fifteen minims of *acetum scillæ* given every two hours will generally suffice. Later in the disease the chloride may be substituted, which has an alterative effect and tends to lessen the secretions of the bronchial mucous membrane, and during its use digestion usually improves.

Strychnine is also a valuable respiratory stimulant and heart and systemic tonic, and is of undoubted value. In desperate cases its judicious hypodermic use is superior to all other known remedies, and has many times turned what seemed a hopeless case to recovery. In all such cases it is the remedy *par excellence*.

Cough rarely requires treatment, and should not be stopped, as it is the only way a child

has of cleansing out its bronchial tubes and preventing collapse.

We must be guarded in giving opiates to allay pain. As a rule flaxseed poultices will generally be found sufficient; if not, compound tincture of camphor may be added to the cough mixture, or Dover's powder may be given.

If there is dyspnea due to obstruction of the bronchial tubes from accumulated mucus, an emetic should be given. In weak and debilitated children these should be used cautiously. Ipecac is perhaps the safest and most frequently used emetic. In older and stronger children turpeth mineral by the mouth, or apomorphia hypodermically, are recommended. When the dyspnea comes in paroxysms, and is not due to obstruction of the bronchial tubes with mucus, there is no treatment equal to the hot bath. The temperature of the water should be about 100° F., and the child allowed to remain in the bath for ten or fifteen minutes, then wrapped in a woolen blanket.

As a rule children bear high temperatures without the rapid prostration observed in adults. Even a temperature of 104° or 105° F. does not always call for antipyretic drugs. The fever of bronchopneumonia seldom calls for special treatment, but should it do so there is nothing better than the general bath with water at 100° F., gradually lowered to 80° F. or lower. The bath may be repeated several times daily if required. The coal-tar antipyretic drugs must be used with caution. The bath is much more to be preferred than dosing with antipyretic drugs, as it not only lowers the temperature effectively, but also acts as a general tonic, and tones up and refreshes the child, and is usually followed by refreshing sleep.

Collapse requires bold and energetic treatment, hypodermics of ether, brandy, and strychnine. The latter may be added to the brandy or ether, whichever is chosen. A douche of cold water to the nape of the neck will usually cause violent inspiration followed by vigorous coughing, even though a high degree of carbonic acid poisoning be present.

Another way of treating these cases is by mouth-to-mouth inflation. When the breathing becomes improved the child may be wrapped in a sheet wrung out of hot mustard water, within a flannel blanket. Plenty of fresh air should be allowed. Some recommend the child being wrapped in a sheet wrung out of ice-cold water, a flannel blanket on the outside, which stimulates the nervous

system and improves very markedly the general condition.

In cerebral cases the main remedies to rely upon are the hot bath, chloral by the rectum, or the bromides and hyoscyamus by the mouth.

Careful regulation of the feeding during convalescence must be observed. If hypersecretion of the bronchial mucous membrane continues oil of turpentine will often be found beneficial, or syrup of the hypophosphite of lime. Later, cod-liver oil and iron will be found of service, but before these are given we must see that the digestive organs are able to take care of them; if not, they had better be preceded by a short course of muriatic or nitro-muriatic acid, with tincture of nux vomica in some of the vegetable bitters, as the infusion of calumba.

Cod-liver oil may be used by inunctions in young infants to advantage. The syrup of the iodide of iron is perhaps the best iron preparation to use. If the bronchial glands are enlarged they are best treated with muriate of ammonia or syrup of hydriodic acid.

Caution should be exercised in guarding against exposure to cold and damp for a long period after apparent recovery has taken place. When able to be moved, a change of air is above all things the best, especially from the city to the country.

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#### STEAMING THE UTERUS IN SEPTIC CONDITIONS FOLLOWING ABORTION, ETC.

Some months ago we presented the substance of an article on this subject by Dr. Ludwig Pincus, of Dantzig. In the *Centralblatt für Gynäkologie* of February 20 that gentleman has a further communication on the matter. He reports the results in ten additional cases of sepsis following abortion. In five of them the fever disappeared speedily by crisis, in two lysis occurred, and in three there was no notable fever to begin with. The occurrence of lysis, he thinks, indicates infection of a moderate grade. In almost all the cases the odor ceased at once or became so slight as to be hardly noticeable. In one case the steaming had to be repeated on the third day, and then lysis set in. At the time of the appearance of the lochia, on the third or fourth day, he began the use of vaginal injections of sterilized physiological salt solution, and in one case he used injections of potassium permanganate.

The treatment he regards as still in the experimental stage, and he acknowledges that thus far he has employed it with the feeling that there was a certain amount of risk, especially of inoculating fresh wounds with infectious germs. But he adds that it seems to him a very plausible procedure for reducing the risk to the minimum, particularly in neglected cases, for it not only destroys the germs and covers fresh wounds with a protective coagulum, but induces energetic uterine contraction, whereby the traumatic surfaces are decidedly reduced in size, and involution, which generally means convalescence, is remarkably promoted. He thinks the treatment is especially suitable in cases of so-called habitual abortion, which so commonly depends on a diseased state of the endometrium, that may be overcome by two minutes' steaming at  $212^{\circ}$  F., followed for six or eight days with applications of tincture of iodine.

Dr. Pincus makes it a *conditio sine qua non* that the steaming shall be employed only when there is no complication affecting the adnexa, although incipient inflammatory phenomena—but without suppuration—with irritation of the peritoneum (quoting from Kahn) may be favorably affected by the steam. In the treatment of abortion he does not resort to active interference unless the indication of hemorrhage, fetor, or fever is present. Whatever remnants of the ovum there may be in the uterus he removes with the finger oftener than with the curette, and then irrigates the uterine cavity with an antiseptic solution, using Playfair's tube, and repeating the irrigation daily for several days if necessary. In addition he applies cold compresses or ice-bags to the abdomen, and always gives ergotin subcutaneously. He maintains that the steam treatment is a specific for septic abortion, and probably also for uncomplicated puerperal endometritis, but he closes with the qualifying remark, "*specifica non sunt, nisi in manu periti.*"—*New York Medical Journal*, March 20, 1897.

#### CHLOROFORM AND THE HEART.

In an editorial in the *British Medical Journal* of April 24, 1897, is discussed an important paper, which so completely supports the views expressed in the THERAPEUTIC GAZETTE in various issues that we venture to reprint it, although it is based entirely on a Progress article in this same issue from the *British Medical Journal* of April 17:

"In an address delivered before the Society of Anesthetists on February 18, which was published in the *British Medical Journal* of April 17, Mr. Leonard Hill brought forward additional evidence of the incorrectness of the doctrine, promulgated by the Hyderabad Chloroform Commission, that chloroform has no direct action on the heart. This new evidence is the outcome of his researches into the influence of the force of gravity on the circulation of the blood, which were communicated to the Royal Society in November, 1894, and published in detail in the *Journal of Physiology* in the following year. When an animal is turned from the horizontal to the feet-down position, the cannula in the artery being ingeniously placed in the axis of rotation, there is a fall of blood-pressure in the carotid, and a fall of intracranial pressure. The fall of blood-pressure is not great, and in a normal animal under morphine it soon rises to but a little short of the pressure recorded in the horizontal position. The mechanism of this recovery or compensation has been carefully investigated by Mr. Leonard Hill, and he has shown that it depends upon the integrity of the vaso-motor and respiratory systems, together with the efficiency of the heart. In the feet-down position the blood accumulates in the vessels of the abdominal viscera, and it is 'lifted' on to the heart by an increase of tonic constriction of the splanchnic vessels, aided by an increase of abdominal pressure brought about by contraction of the muscles of the abdominal wall. Previous section of the splanchnic nerves, or division of the dorsal spinal cord, by removing the tone of the splanchnic vessels, leads to a much greater fall, and does away with the power of compensation, although the animal endeavors to drive on the blood by powerful contractions of the expiratory abdominal muscles. When these are also divided the blood-pressure falls still lower. If the chest is opened the heart is seen to be bloodless and empty, but can be immediately filled by pressure on the abdomen. Increased activity of the vaso-motor center is the main factor in bringing about the recovery of pressure.

"It is interesting to note that in an 'upright' animal, such as the monkey, the compensating mechanism is very efficient and prompt, and in fact there is frequently over-compensation, so that the carotid blood-pressure is higher in the upright than in the horizontal position. The same is the case in man, and this has been clearly shown by Dr.

George Oliver with his ingenious instrument, the arteriometer. This instrument gives an indication of the pressure in an artery by measurement of its diameter, and shows that the diameter of the radial artery of a healthy man is greater in the sitting than in the recumbent position. In the upright position the heart beats faster, for it has more work to do in sending the same quantity of blood through the brain and through the abdominal viscera back to the heart again. The increased work of the heart is the third factor in bringing about compensation on change of position. As long as the heart is able to do this very small increased amount of work the pressure recovers; but if it is not able to do it, only an incomplete and poorly sustained compensation is brought about.

"Now, Mr. Leonard Hill finds that chloroform is a most powerful agent in doing away with the power of compensation. With moderate anesthetization the fall of blood-pressure on turning the animal into the feet-down position is very considerable, and that the blood largely accumulates in the splanchnic vessels is shown by the considerable recovery of pressure, though short of normal compensation, brought about by compression of the abdomen. This compression drives blood on to the heart, and the heart forces some of it on into the arterial system. Very different is the result when the anesthetic is pushed: a very great fall of pressure is produced, and compression of the abdomen, or even turning the animal feet up, leads to no adequate rise of pressure. The feet-up position does not restore the pressure to as high a level as that which was maintained in the feet-down position before the chloroform was pushed. It is no use squeezing blood on to the heart, for it is incapable of dealing with it. A heart under the influence of chloroform is not able to do the small additional work required to maintain anything like the same pressure when the animal is turned from the horizontal to the vertical position.

"The experiments show the essential difference between a low pressure produced by vaso-motor paralysis and one produced by chloroform, and leave no doubt whatever that the dangerous fall produced by the drug is due to direct action of the heart. So that from an entirely different standpoint the work of MacWilliam, Ringer, and others, and the results obtained by the elaborate cross-circulation method of Gaskell and Shore, are completely confirmed. Mr. Leonard Hill

points out that the tracings of the Hyderabad Commission also show that failure of the circulation is really the cause of death; for the respiration stops, not because the center is paralyzed, but because the blood-pressure has fallen to a certain amount, and it recommences when this is by any means raised to that amount again, although the center is thereby supplied with as much chloroform as before. In fact the tracings of the Commission, as Dr. Gaskell and Dr. Shore have pointed out, are, so far as they go, as good as any others; they are infallible records made by the animals themselves, and when read by competent physiologists tell the same tale as all others do.

"Mr. Leonard Hill has not omitted to point out the practical bearing of his experiments on the treatment of that commonest cause of death from chloroform—syncope in an early stage. In one year, out of forty-one deaths from chloroform syncope, thirty-nine occurred in the primary stage before the patient had been touched by the knife. The sudden application of concentrated chloroform vapor causes struggling and holding of the breath, the glottis is closed, and intrathoracic pressure is raised; the lungs are thereby compressed and largely emptied of blood: this leads to engorgement of the right heart and congestion of the venous system, until at last two or three very deep respirations are taken, and there is a sudden rush to the left heart of a mass of blood surcharged with chloroform. The heart, already dilated, is then paralyzed. Holding strong chloroform vapor to the nostrils of a struggling patient is to court disaster.

"When syncope has occurred the chief thing to do is to relieve the heart of blood and not to drive blood to it, as is so often done by inversion or flagellation. Artificial respiration is to be applied in the horizontal position by forcibly compressing the chest rhythmically, with the object of bringing pressure to bear on the heart. If this is not immediately successful the same maneuver must be carried out in the vertical feet-down position, and under no circumstances must the abdomen be compressed or the patient inverted. If only a little blood can be forced through the heart and the pressure on the right side be sufficiently relieved spontaneous contraction will soon occur, and as the blood-pressure rises respiration will begin again. Mr. Leonard Hill's experiments afford additional proof of the difference in action of ether and chloroform. With ether the fall

of pressure is much more gradual, and when the animal is placed in the feet-down position the drop of pressure is comparatively small; but even when the ether is pushed and a low pressure produced it can be at once raised by compression of the abdomen or by the resumption of the horizontal position. The heart is comparatively little affected, and, as the blood is brought to it, it can pass it on, but the chloroform heart cannot. As to the physiological action of chloroform, and the comparative safety of ether, recent experiments on animals are, we are glad to see, in complete accord with clinical experience."

#### *THE CAUSATION OF CHLOROFORM SYNCOPE.*

In the *British Medical Journal* of April 17, 1897, LEONARD HILL of London concludes a valuable paper supporting that of Hare in the *GAZETTE* for February, 1897. He says from the previous experimental discussions in this paper it is conclusively proved that chloroform may paralyze the heart, the vaso-motor mechanism, and the respiratory center. If it happened that we simply had to deal with failure of the respiration this would be no matter of grave danger to the patient. Artificial respiration will remove the danger. If simple vaso-motor paralysis occur concomitantly with failure of respiration, as is always the case, artificial respiration combined with slight elevation of the abdomen to a level above that of the heart would immediately restore the patient to safety. It is when the clinician has to deal with the paralytic dilatation of the heart that the gravest danger has to be faced. As it is impossible to diagnose whether this condition may exist or not, every case of chloroform syncope should be treated as if it did exist. Recovery can be brought about, and, so far as the writer's own experience goes, practically in almost all cases, by following this simple procedure: At the moment syncope occurs the patient must be placed in the horizontal position, and artificial respiration applied. The chest must be rhythmically compressed by placing the hands on each side of the thorax, so that the heart may share in the compression, and the circulation through that organ may by artificial means be maintained to a certain extent. If this is not quickly successful in restoring the pulse and natural breathing, the patient should be turned into the vertical feet-down position. By this means the dilated right

heart will be emptied into the abdominal veins. Whilst this is taking place, artificial respiration must be maintained. The writer states he has frequently seen the paralyzed heart start beating again on thus emptying it of the blood. After a few seconds the patient should be returned to the horizontal position, and the right heart will thus be refilled with a fresh supply of venous blood. By means of the artificial respiration this blood is driven on through the lungs to the left heart, and thence into the coronary arteries. If this maneuver does not prove successful at the first attempt, it must be repeated. Since he has adopted this method he has scarcely failed to recover a single case of chloroform syncope. The success enormously depends on the swiftness with which the condition of syncope is recognized. Nelaton's inversion, or the feet-up position, is only a safe measure in cases of syncope arising from vaso-motor paralysis. Either inversion or compression of the abdomen are fatal mistakes in cases of cardiac failure. A poisoned heart is with greatest ease thrown into paralytic dilatation by compressing the abdomen, as shown by a number of experiments.

By rhythmically and artificially compressing the thorax or the heart he has found it possible to maintain an arterial tension of twenty to thirty millimeters Hg. This causes the coronary arteries to be flushed with fresh blood, and the heart to be excited to spontaneous contraction. After the circulation has thus been renewed, the respiration frequently remains in abeyance because the arterial tension is too low to excite the center to activity. In this condition the best plan is to cease artificial respiration, and carefully observe the pulse. The arterial tension, on account of the asphyxia, will rise, and when it has reached a certain level spontaneous respiration will start once more. If by any chance the pulse should show signs of again flagging artificial respiration must be immediately resumed for another period.

As to the danger of administering chloroform the author entirely agrees with the Hyderabad Commission that the inhaler should only be applied when the respiration is quiet, and should be removed entirely if the patient shows any sign of struggling. If this precaution be always taken deaths from chloroform would become far more rare; nevertheless, it must always be looked upon by the inexperienced as a most dangerous drug, and one the use of which should be avoided whenever ether can be appropriately substituted.

Pure chloroform, he has found, kills in exactly the same way as impure chloroform. The A. C. E. mixture, on the other hand, is safer than pure chloroform simply because the latter drug is diluted, and therefore is not given in a concentrated form. Chloroform is the predominant partner in the mixture, and when A. C. E. is pushed the animal dies with all the symptoms of chloroform syncope.

Towards the close of his paper Hill says chloroform produces a primary failure of the circulating mechanism and a secondary failure of the respiratory center. The respiratory center fails to act not only because it is damaged by the drug, but because of the anemia of the spinal bulb produced by the fall of arterial tension. This is proved by the fact that the action of the respiratory center can be renewed by raising the arterial tension. The depth of anesthesia depends, as does the paralysis of the respiratory center, on the primary fall of the arterial tension.

Chloroform, more than any other known agent, rapidly abolishes the vascular mechanisms which compensate for the hydrostatic effect of gravity.

Chloroform abolishes these mechanisms by paralyzing the splanchnic vaso-motor tone, and by weakening the action of the respiratory pump. When these mechanisms are totally abolished the circulation is impossible if the subject be in the feet-down position.

Chloroform also produces paralytic dilatation of the heart. It acts directly like amyl nitrite on the musculature of the whole vascular system.

There are two forms of chloroform syncope: (a) During primary anesthetization the patient struggles, holds his breath, raises the intrathoracic pressure, congests his venous system, lowers his arterial tension, and finally takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second stage it is suddenly filled with blood. This is drawn from the lungs, and is full of chloroform. The chloroform passes into the coronary arteries, and the heart is thrown into paralytic dilatation. Respiration and the pulse either cease simultaneously or the pulse before respiration. (b) During prolonged anesthetization this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and secondarily the respiration ceases because of the anemia of the spinal bulb. The heart is not in this case paralyzed by chloroform, because the drug is taken in gradually

by the shallow respirations, and distributed slowly by the feeble circulation.

Artificial respiration and the assumption of the horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope.

Artificial respiration, established with the patient in the horizontal posture, is also the treatment indicated in the first form of syncope; the heart should be rhythmically compressed by squeezing the thorax. If this does not quickly renew the pulse, the patient should be put into the vertical feet-down posture. The dilated right heart is thereby completely and easily emptied of blood. Artificial respiration is maintained during this maneuver, and the patient is brought once more into the horizontal posture. By rhythmic compression of the chest an efficient circulation is maintained through the coronary arteries; by first emptying and then filling the heart a fresh supply of blood is brought into that organ. If this does not prove successful on the first trial it can be repeated.

Inversion—that is, placing the subject in the feet-up position—or compression of the abdomen will increase the paralytic dilatation of the heart. In this kind of syncope both these forms of treatment are worse than useless.

In the condition of shock or emotional fear the compensatory mechanism for the effect of gravity is almost abolished, and chloroform may easily be the last straw to completely paralyze the circulation.

Vagus inhibition of the heart is of no importance as an agent in the production of chloroform syncope.

Ether is in every respect a far safer anesthetic than chloroform. According to Ringer's experiments on the heart, ether is fifty times less dangerous than chloroform.

With the practical conclusion of the Hyderabad Commission that the chloroform inhaler should be removed during the struggling of the patient or when the respiration is of irregular depth the writer is in absolute agreement, but he considers their interpretation of their own experiments and tracings concerning the origin of chloroform syncope to be mistaken.

Not only the work of all physiologists, but also the tracings of the Commission, when rightly interpreted, prove that paralysis of the circulatory mechanism, and not of the respiratory center, is to be dreaded by the anesthetist.



## ON SENILE ENDOMETRITIS.

HERMANN in a new English journal called *Treatment* tells us that when consulted by an old woman about a copious purulent vaginal discharge the vagina should be first treated. Swab the vagina out with strong (!) carbolic acid, and prescribe frequent astringent injections, such as zinc chloride, five to ten grains to the pint. Begin with the weaker and increase the strength if necessary. Repeat the application of strong carbolic acid two or three times, if necessary, with weekly intervals. Take care that none goes on the vulva. If discharge comes from the uterus, there may be so little of it as not to trouble the patient when the vaginal discharge has been stopped. If treatment of the vagina does not abolish the discharge the cervix should be dilated with laminaria tents (!), and the interior of the uterus explored. If growths are felt they should be scraped away and examined with the microscope. If there are no outgrowths the endometrium should be scraped with a blunt curette, any bits detached reserved for the microscope, and then the interior of the uterus swabbed with strong carbolic acid. This will almost always remove the symptoms for a time. If after a short interval they return, and become as bad as before, the best treatment is to remove the uterus.

Matthews Duncan advised the injection of mild astringents into the uterine cavity through a hollow sound. His great authority makes the writer think this worth trying in the case of a patient averse to operation. Duncan says it often fails; and the writer expects little from it.

## LAPAROTOMY IN TUBERCULOUS PERITONITIS.

VON MARCHTHURN (*Wien. Klin. Woch.*, March 4, 1897) records nineteen further cases of this affection operated on by Chrobak. No patient died directly from the operation, but one succumbed the day after from inanition. Twelve patients recovered entirely from the peritonitis, but two of them died five months and two years respectively after the operation, of pre-existing pulmonary disease. In three cases a second laparotomy was necessary three to seven months after the operation; two of the patients recovered completely; the third died of pulmonary tuberculosis five months later without abdominal recurrence. Two patients had been tapped before the operation; one of these

was cured, the other could not be traced. Eleven of the cases were complicated with lung trouble: of these three died, two from the pulmonary affection, the abdominal mischief having healed, the third from exhaustion. All the eight patients with sound lungs recovered. The author is disinclined to follow Spaeth in forbidding operation in patients with lung disease. In six cases there was tuberculosis of the generative organs; in four both sets of appendages were affected, but too tightly bound down by adhesions to be removed. In three of these the tumors disappeared after the operation; the fourth patient left the hospital relieved, but was then lost sight of. Of the other two patients, one, who died the day after operation, had a tuberculous abscess of the left ovary; the other, a tubo-ovarian cyst, which could not be removed, and which eighteen months later had given rise to no further trouble. Three cases had high temperature before operation; these did perfectly well, and in only one of the others did the thermometer register 100° F. after laparotomy. The diagnosis was invariably verified microscopically. The after-history was unfortunately deficient in six cases. Altogether out of thirty-eight cases treated by Chrobak in the years 1896-97 by simple laparotomy, twenty-one (fifty-five per cent.) were completely cured. The most rational explanations of these cures appear to be stimulation of the peritoneum and the removal of fluid from the abdomen; the former is the more generally applicable, as dry tuberculous peritonitis is equally adapted to the treatment. The author concludes by giving Chrobak's opinion that in tuberculous peritonitis medical treatment is useless, and tapping at best but of temporary service; incision, and if necessary evacuation of the abdominal contents, afford by far the best chances of recovery.—*British Medical Journal*, April 17, 1897.

## PRURITUS.

DIRNER (*Centralblatt f. Gynak.*, No. 5, 1897) introduced, by reading a paper on the operative treatment of pruritus, an important discussion on that disease at a recent meeting of the Royal Hungarian Medical Association. He admitted that the diabetic variety was curable; so was that form of pruritus due to microbes in vaginal or cervical secretion. The intractable cases were clinically and pathologically primary. They represented subacute inflammation of the vulvar

integument and fibrosis of the Pacinian corpuscles and other delicate structures. Dissecting off the skin involved in this morbid process, "vulvitis pruriginosa," alone effects a cure. He read notes of two cases, one particularly obstinate, where the patient was aged 65. He dissected off all the vulvar integument from the mons veneris to the navicular fossa, taking away the clitoris. The wound was sutured with silver wire, and covered with iodoform collodion. It healed by first intention. After healing there was no tension, though so much skin had been removed. Tauffer found that pruritus from germs, secondary to leucorrhea and endometritis, is very hard to treat. Besides treatment of the existing cause, free application of sublimate lotion is needed. Diabetic pruritus is certainly difficult to cure. Kezmarszky agreed with Dirner as to a primary prurigo due to degenerative changes in the skin, and needing operation. He found, contrary to Tauffer, that the secondary forms, pruritus from diabetes and from germs in discharges, yield readily to symptomatic treatment.—*British Medical Journal*, March 27, 1897.

*CATHETERISM OF THE URETER IN THE  
MALE WITH THE HELP OF THE  
URETER CYSTOSCOPE—A RE-  
PORT OF SEVEN CASES.*

In the *Medical Record* for May 1, 1897, WILLY MEYER publishes an article in which he says: There is no longer such a thing as testing the efficiency of this procedure. Let it be generally understood that to-day the ureters of the male can be catheterized and the kidneys drained without a previous cutting operation. But the method has its limitations, as cystoscopy has when carried out with Nitze's instrument. The method will and must be a failure whenever the three cardinal conditions which permit cystoscopy cannot be fulfilled, viz.:

1. If the caliber of the urethra is not sufficiently large to allow the passing of the instrument.
2. If the bladder has not a capacity of at least four or five ounces.
3. If the fluid within the bladder cannot be made and kept transparent.

Now and then these cardinal conditions are fulfilled, and yet the method proves unsuccessful owing to the fact that the mouths of the ureters cannot be found, or that they cannot be approached, or that they are too small to allow the entrance of even the finest

of catheters. Sometimes the catheter has well entered the ureter, but it soon becomes plugged by descending blood or pus.

With reference to the work itself, the author can repeat to-day what he said a year ago: He considers the manipulation here in question an easy one, in the male as in the female. He has not changed his views since then. To approach the ureteral mouth and engage the tip of the tiny catheter in the same is not a bit more difficult in the male than it is in the female.

Of course, in order to be successful a perfect familiarity with cystoscopic work is required. He who thinks that for catheterism of the ureters in the male it is merely necessary to buy Casper's or Nitze's instrument and then proceed, is very much mistaken, and will no doubt be disappointed in his attempts, surely in his first ones. He had practised cystoscopy with Nitze's instrument in the male and female for fully eight years before he catheterized the ureters in the male for the first time. The reason for this was not that such a long preparation is needed, but simply because a useful instrument was not to be had sooner. Such was not for sale before 1895. But during these eight years he had learned in many hundreds of cases how to find the ureteral openings, even under adverse and difficult conditions. He had learned how to approach them even in such cases. For half hours at a time and longer did he in a great number of instances uninterruptedly watch the ureteral jets for the sake of determining the transparency or turbidity of the descending urine. He had carefully timed the outflow with a view to finding the working coefficient of the respective kidney. Often did he do this for so long a time that he was forced to stop because of the running of his eyes due to the severe strain. If the cystoscopist knows how, the author might say, to "handle" the ureteral openings he will surely enjoy this kind of work, as the author has done from the very beginning.

But he who does this sort of work in the male should always have made up his mind to proceed with patience and perseverance; he must not be in a hurry. His patients come on special appointment. It has taken him at times fully two hours before he got through, and then, in one instance, he had to be satisfied with the collection of 4.5 cubic centimeters from the one kidney; in another case the catheter did not give exit to any fluid whatever on the one side. But

the reason for this annoyance was not the difficulty of the procedure, but some mechanical obstruction of the catheter's eye or lumen. Plugs of descending pus, the smallest amount of coagulated blood, with some pushed-off epithelial cells of the ureter, may easily obstruct the eye of the tiny catheter. If repeated aspiration with a powerful syringe attached to the outer funnel-shaped end of the ureter catheter does not soon make the urine flow through the catheter, one ought to pull back the catheter's tip into the bladder, then wash out the canal with sterilized boric-acid solution, the eye of the ureter catheter being within the vesical fluid, and then reintroduce the instrument. As mentioned above, he did this maneuver in the case of a lady three times. At the fourth reintroduction urine at last began and continued to flow through the catheter.

He further wishes to mention the necessity of good assistance when catheterizing the ureters. He believes it is impossible to do good ureteral work in the male without a trained hand at one's side. He has so far always had and needed the help of his office nurse. She thoroughly knows what he wants, how to fix the cystoscope and the catheter when he pulled out the mandrel, how to steady the instrument when the catheter is *in situ*, etc. All these points to be observed when carrying out the work may at first seem cumbersome and superfluous, yet he deems them absolutely essential for successful ureteral work in the male.

In summing up these remarks he would say that repeated disappointment in the early time of ureteral work in the male should not discourage the cystoscopist. On the contrary, it should stimulate him to further trials. The reason for his failure should be sought rather in lack of experience in intravesical cystoscopic work, and also perhaps in lack of proper assistance, than in the imaginary defect of the instruments used for this purpose. Both of the ureter cystoscopes now in our hands are useful and do not need special improvement.

In order to be successful in using Casper's instrument, one will do well, he believes, to follow the rules he has laid down in his former article, repeatedly referred to—rules which he has found practical by personal experience. They are, briefly repeated and revised, and extended after his additional experience, as follows:

1. Wash and cocaineize the bladder according to well known rules.

2. Fill the bladder with from five to seven ounces of clear fluid.

3. Introduce the instrument. For this purpose the ureter catheter should be pushed down to the internal opening of the canal of the cystoscope; the lid of the latter should be pulled out about one-third inch.

4. As soon as the beak has entered the bladder the catheter should be gently pushed forward into the vesical cavity about one-half to three-quarters of an inch, and then the lid should at once be pushed back into place, *i.e.*, it should be fully closed.

5. After the interior of the bladder has been inspected and the ureteral openings have come into view, approach one of them.

6. Let the ureteral opening appear at the very end of the cystoscopic picture, farthest away from the middle of the bladder; but keep it under your direct inspection, with the prism as near to it as possible.

7. Push the catheter gently forward; if the beak's direction is a proper one, *i.e.*, if it is parallel with that of the lower end of the ureter, he is sure the ureteral catheter will almost invariably easily enter the mouth, when conducted by a trained hand.

8. Allow the catheter to proceed not more than one or two inches into the ureter, and withdraw the wire mandrel. Then, as a rule, urine will begin to flow drop by drop at intervals or continuously.

By faithfully adhering to these rules in the author's work, he has invariably been successful. Of course, the number of patients thus treated is not yet very great. But, so far, he can repeat conscientiously that whenever, in male or female, he has been able to see and approach the ureteral opening, he has also succeeded in introducing the catheter into the same. He has specially added the words "so far" because he has no doubt that he may probably encounter cases in the future in which his attempts will not be crowned with success, although the ureteral openings can be well seen and approached. But up to date there has been only one among all his cases, male and female combined—a patient of Dr. F. Cushier and Dr. Robert F. Weir, of this city—in which he has failed in his repeated attempts, although he saw the opening very distinctly before him. However, in this patient he afterward also failed with Kelly's method in repeated sittings. There was no catheter or probe small enough, metal or flexible, to enter the mouth. The reason for this was partially, as had been primarily well ascertained with the cysto-

scope, that the ureter emerged, not as is usually the case, at the innermost end of the ureteral intravesical fold—*i.e.*, nearest the trigonum—but about one centimeter away from it upwardly. The consequence was that the ureter catheter, in order to pass on, would have had to turn in a sharp angle right after its entrance into the ureteral mouth. This seemed not feasible. Besides, the mouth of the ureter was constricted, evidently congenitally. Such strictures we have to put on a basis with the congenital narrowness of the external meatus, so often found in the male. By chance he nevertheless succeeded in determining the question at issue, viz.: Is the opposite kidney healthy? He adds this here because the case really was a perplexing one. There had been an intermittent renal pyuria for the last two years. The right kidney was large, easily palpable, slightly painful to the touch. At the third sitting it struck him at once that when washing out the bladder the water returned clear from the beginning. He concluded that on this day the ureter of the diseased side was most probably temporarily obstructed. Cocainization of the bladder was somewhat prolonged on account of making preparations for the following work. It may have taken in all about six or seven minutes. During this time the patient, who had taken a great deal of fluid before going to the author's office, discharged five ounces (!) of urine into the bladder. Instead of drawing off 50 cubic centimeters of the cocaine solution and perhaps 10–20 cubic centimeters of meanwhile admixed urine, he measured 200 cubic centimeters (50 cubic centimeters of a two-per-cent. solution of cocaine had been injected by him). On viewing the bladder after Kelly's method he saw that the ureter of the presumably diseased side, which emptied within the center of an irregular ulceration, did not discharge a drop of fluid. Examination of the 200 cubic centimeters of mixed cocaine solution and urine proved the latter to be perfectly normal. In other words, there was a well-working, healthy opposite kidney. Dr. Weir successfully removed the diseased kidney. The operation, as well as the specimen thus obtained, proved to be of unusual interest.

Whether we should advise patients to take a large amount of fluid before examination is still a mooted question. In the male he believes it is a wise plan. As explained in his former article, in the male we must drain one kidney after the other—if possible,

of course, always in the same sitting. That is to say, we cannot generally leave the catheter first introduced into one ureter in place; liberate it; catheterize the opposite side, leaving the catheter there also *in situ*; remove the cystoscope. There will be few urethræ found in the male of sufficiently wide caliber to allow properly moving the cystoscope with the catheter at its side within the urethra. It may often be possible under general narcosis. The latter, however, it seems to the author, should for various reasons be avoided as much as possible in this procedure. We drain the kidneys separately for renal disease, and ether as well as chloroform is detrimental to the renal tissue. So far, he never used or needed general anesthesia for his ureteral work. This, as mentioned above, has been office work throughout.

In the male we are, therefore, limited in time. The sooner the patient gets through, the better. The more fluid he has taken before the examination, the more rapidly his kidneys will work. Of course, due weight must be given this point in drawing conclusions from the urinary analysis. However, as both kidneys have been subjected to greater work at the same time, mistakes can be avoided by a competent analyst.

In the female the case is different. Both kidneys may be drained for hours, provided we do the work at the patient's home or at the hospital. The urine from each can be separately collected in proper bottles put into the bed. We certainly can state the fact: Urinary analysis will be more satisfactory without diluting the renal secretion too much by previously ingested fluids.

With reference to finding out the amount of work done by each kidney within a given time, he formerly counted the drops that were discharged through the ureter in a certain number of seconds, and also counted the intervals between the different discharges. He has discarded this method since he has distinctly seen jets of urine at the ureteral opening enter the bladder with the ureter catheter *in situ*. The urine evidently often drains alongside the catheter besides passing through its lumen. The catheters which accompany Nitze's ureter cystoscope are of more use in this respect than those of Casper's instrument. The former have an end hole behind a scoop-shaped lengthening of the material of which the catheter is made, the whole thus forming a sort of bougie. The latter carry the eye at the side. Neverthe-

less he believes that timing the number of drops discharged through the ureteral catheter is an unreliable observation.

His whole work with a cystoscope according to Nitze's principles has, so far, been done with Casper's instrument—this for the simple reason that the first specimen of Nitze's reached him in a damaged condition. Before it was exchanged by the factory, more than half a year elapsed. He will certainly try it the first opportunity that offers.

Whether in the female one should make use of a cystoscope constructed on the Nitze plan, or of Kelly's instruments, is really a matter of taste. The manipulation with the imported ureter cystoscope certainly is a very gentle one; it is also very comfortable for the patient. She rests her back in the position used by us for bimanual vagino-abdominal palpation.

A trained cystoscopist should, in the author's opinion, be master of all methods "that have proved useful and can be made use of for this purpose." In many instances he may, even in the female, succeed with the one method or instrument when the other failed for certain reasons.

In the male we have no choice. As explained at length above, Kelly's method for catheterism of the ureters is here a technical impossibility. We need instruments which carry the electric light into the bladder, and enable us at the same time to inspect and catheterize the ureteral openings by looking through a telescope and guiding the catheters through a separate channel.

With regard to the indication for catheterism of the ureters, it is in his opinion our duty to try to separately collect and analyze the secretion of each kidney "in the male as well as in the female" in all so-called obscure urinary diseases, provided the analysis of the bladder urine points to a renal lesion. It becomes our solemn duty to establish the presence, the health or disease, if possible also the working power, of the opposite kidney if nephrectomy has to be done.

If physicians will appreciate the importance of this now feasible examination, and make it a point to have cystoscopy and catheterism of the ureters in the male as well as in the female added to the other means at their disposal for arriving at a definite diagnosis, then the so-called obscure urinary diseases will at last become a thing of the past in the male also, and our diagnosis in the majority of such cases will from mere guesswork be put on a strictly scientific basis.

#### RESECTION AND EXTIRPATION OF THE LARYNX FOR MALIGNANT TUMORS.

Many lives could be saved if the diagnosis of malignant tumors could be made earlier. A writer in the *Beitrag z. Klin. Chir.* urges physicians and students to master more thoroughly and universally the technique of laryngoscopy, so that malignant neoplasms can be discovered more frequently and removed in their incipient stages. Mikulicz has found that a normal function can be retained if two-thirds of the larynx can be saved. Important in this respect is the secondary suture to decrease the size of the wound, and the prevention of the formation of epidermis from the edges in. In thirteen cases operated, four have remained in good health since, one and one-half to eight and one-half years. One succumbed shortly after the operation; another died later of phthisis. In five cases the tumor grew again in three to ten months, with a fatal result in four. In six cases superior tracheotomy was performed, and inferior in the rest. Hemostasis was secured by ligatures and lateral compression; only once was the thermo-cautery necessary. He considers frequent changing of the bandages very important. Food was taken by the sound through the wound or lower nasal passages. He has never applied an artificial larynx.—*Centralblatt für Chir.*, March 13, 1897.

#### FAVORABLE EFFECT OF LAPAROTOMY ON TUBERCULOUS PERITONITIS.

GATTI has produced experimentally tuberculous peritonitis and then cured it with a laparotomy; gradually the tuberculous cells and the bacilli disappear, the products of degeneration are absorbed, and a process of reorganization ensues, in the course of which the peritoneum becomes normal not only to the eye, but to histologic and bacteriologic tests also. The process requires six to eight months, and the laparotomy, to succeed, must be performed at the proper moment, neither too soon nor too late, the tubercle fully developed and before the caseous degeneration has begun. As it is difficult in the clinic to determine the exact moment when the operation is needed, Gatti recommends a second laparotomy if the first proved ineffectual, and it was noticed that caseous degeneration had not begun. Burci ascribes the effect of the laparotomy to the combination of trauma, change of temperature, admission of light and air, etc.—*Gaz. d. Osp. e. d. Clin.*, No. 13, 1897.

*THE TREATMENT OF HYPERTROPHIC RHINITIS BY RESORCIN.*

GONZALES CAMPO (*Annales des Maladies de L'Oreille du Larynx*, No. 5, 1897) holds that hypertrophic rhinitis depends either upon a myxedematous degeneration of the mucous membrane or hyperplasia of the submucous connective tissue, consecutive to a chronic coryza. It often accompanies and usually precedes pulmonary phthisis. Bougies, massage, electrolysis, chemical cauterization and galvano-cautery have all failed to cure the trouble.

The author has succeeded with baths of one-per-cent. solution of resorcin. He has treated more than 125 cases. All were cured in about two months, the treatments being repeated every two or three days.

The first effect is one of irritation, followed in an hour or two by retraction of the hypertrophic tissue. Treatment is not applicable to neuropaths.

Castaneda in considering the anti-diphtheritic treatment in ozena states that one statistical table comprises 32, another 24, and that in this entire list but two undoubted cures have been obtained. He notes amelioration but not a cure in one of Compaired's cases. When cases of ozena are due to tuberculosis or hereditary syphilis, diagnosis may be determined by the use of tuberculin or mercury.

*THE NEW TREATMENT OF OZENA.*

COMPAIRED (*Annales des Maladies de L'Oreille du Larynx*, etc., No. 5, 1897) reports seven cases of ozena treated by hypodermic injections of antidiphtheritic serum. In two instances roseola developed, in one an abscess at the seat of injection. In some instances there was fever, loss of appetite, nausea and general debility. In one instance treatment had to be suspended on account of the frequency and intensity of the nausea. This case was scrofulous, semi-rachitic and profoundly anemic before treatment. The number of injections employed varied from four to twenty-seven. The quantity at each injection was from four to twenty centimeters. The first symptom noted was disappearance of odor. This was followed by edema of the mucous membrane, augmentation and fluidification of secretion.

During the treatment the author used only nasal irrigations of warm sterile salt water, followed by a nasal spray. The conclusions he announces are as follows: This treatment has given more pronounced and satis-

factory results than any other yet proposed for ozena. The results are characterized by the disappearance of the odor after the second or third injection of five or six cubic centimeters, and by diminution of the clots and increase of the nasal fluid. The mucous membrane changes in color, becomes redder, more humid, sometimes slightly hyperemic. The crusts are less heavy, dry and extended, and become softer as the treatment progresses. Doses of ten cubic centimeters are not unattended with risk. The dosage should be increased very gradually.

*THE CURABILITY OF DEAF-MUTISM.*

VERDOS (*Annales des Maladies de L'Oreille du Larynx*, No. 5, 1897) would ascribe deaf-mutism to the otopathy acquired in infancy consecutive to acute rhinitis. From neglect there follows atrophy of the acoustic nerves. Verdos believes that these cases would be curable if the nerves could be stimulated to proper development by vibrations carried through the cranial vault. He states he has cured a dozen deaf-mutes, but sometimes it has required several years. The naso-pharynx received particular attention, the drum was mobilized by means of Politzer's inflator and by the apparatus of Delstanche, and the patients received oral instructions. He would earnestly call the attention of doctors to the cases of acute rhinitis in children, which should be energetically treated.

*THE REMOVAL OF HIGH-LYING CANCER OF THE RECTUM BY KRASKE'S METHOD.*

SWINFORD EDWARDS (*British Medical Journal*, May 15, 1897) writing upon this subject states that according to the height to which the growth extends so must we plan our operation. For anal carcinoma the old perineal operation suffices. Where the disease extends to the level of the sacro-coccygeal articulation behind, probably a coccygeal excision will suffice, or if more room is required the sacro-sciatic ligaments may be divided. For cases extending up still further, even as far as the pelvic brim, the removal of the lower portion of the sacrum, or Kraske's operation, must be undertaken.

Sacro-coccygeal excision not only lets plenty of daylight into the bottom of the wound, and greatly facilitates accurate suture of the perineum, but enables us, in fit cases, to restore the continuity of the gut after removal of the diseased portion.

That which really militates against the success of any rectal excision is the fact of lymphatic infection, or of the extension of the disease beyond the rectal walls, when the growth, instead of being movable with the rectum on its bed of adipose and areolar tissue, is bound down and fixed to the neighboring parts. Where these factors are present attempts at extirpation can only end in disaster. Another bar to operative interference is, according to Mr. Cheyne, a rapidly-growing carcinoma.

As to the advisability of a preliminary colotomy, it has much to recommend it as a preliminary to perineal excision. When we adopt the sacral route, however, it is quite unnecessary on the following grounds:

1. Any wound of the serous membrane can be seen and accurately closed, thus avoiding fouling of the peritoneum.

2. The loss of two or three weeks a previous colotomy entails may make all the difference between success and failure after excision.

3. It is not so likely to be followed by stricture as after the perineal operation, and therefore no subsequent colotomy is necessary; were it otherwise the writer would be inclined to regard it as an argument in favor of a previous one.

4. A colotomy may seriously interfere with or altogether prevent a rectorrhaphy by making it difficult or impossible to bring down the upper rectum by reason of the adhesions between the sigmoid colon and abdominal wall.

If not absolutely necessary, it is hard lines to saddle a patient with an abdominal artificial anus and to subject him to the risk—small as it is—of this extra operation. It might be said: "What does it matter where the artificial anus is placed? If a colotomy is performed the patient will be saved an anus in the sacral region!"

This, however, does not necessarily follow, as the end and aim of Kraske's operation is to restore the continuity of the bowel with use of the normal anus. Even where this cannot be carried out, patients seem to prefer the artificial anus to be placed somewhere between the folds of the buttocks, in the neighborhood of the original outlet. It must also be borne in mind that a previous colotomy is not an unfailing safeguard against peritonitis following injury to the serous membrane during the course of an excision; one of the patients treated by the writer succumbed on the ninth day after an excision,

although he had previously been subjected to colotomy.

It is important, in preparing a patient for the operation, to get the general health into as good a state as possible, and to clean out the bowels for some days before with aperients and enemata. As a first step in the operation he has made it a practise to wash out the rectum thoroughly with some antiseptic—sublimate solution, 1 in 2000, for choice.

With regard to posture, Littlewood's modification of Godlee's position has much to recommend it. He places the patient in the position used for dissecting the buttocks, raising pelvis on a block, and having both knees flexed and resting or kneeling on a chair.

After a longitudinal central incision about six inches in length through the soft parts down to the bone, it may be found that plenty of room is obtained by simply removing the coccyx. In one case, although the upper limit of the growth was on a level with the middle of the sacrum, removal of the coccyx gave ample room. If more is necessary, division of the sacro-sciatic ligaments on the left side may suffice. Whether more of the bone can safely be removed is a question, though Volkmann and Rose appear to have divided the sacrum transversely as high as the second foramen. For the purpose of effecting the division, some use a saw, but a chisel is much easier to work with, and more expeditious. To avoid wounding the soft parts under the bone, it is well to separate them with a periosteal elevator from the anterior surface of both sacrum and coccyx.

If any considerable bleeding takes place during the operation it is here that we may expect it, owing to wound of the middle sacral vessels. After their division they may retract and be difficult to seize, being concealed by the sacrum or what remains of it. Here it is that a good assistant is very necessary.

The bowel has now to be separated, in doing which it is as well after division of the levatores ani to keep to that plane of rectovesical fascia which surrounds the gut, and not to attempt to dissect the bowel out of its bed of perirectal fat; by thus doing much bleeding is avoided and time saved. Separation of the posterior and lateral walls having been effected chiefly with the aid of the finger, it remains to deal with the anterior. The author prefers to clamp the gut well above the growth and to cut it through, in doing which the peritoneum is generally

opened, when a sponge or gauze plug may be inserted temporarily and the dissection proceeded with from above downwards.

The writer gives a table of cases which show that he has several times in coccygeal excision avoided wounding the peritoneum; but he is not at all sure that one does not lose more than one gains by so doing—that is, if a junction of bowel is contemplated—for unless the serous cavity is freely opened it is often impossible to bring down the proximal end.

The question of deliberately and freely incising the peritoneum and subperitoneal tissue with a view to rectorrhaphy seems well worthy of consideration. Where one can avoid opening the peritoneum one should do so, even if it entails abandoning the rectorrhaphy; but where the peritoneum is wounded and the gut cannot be brought down without a freer division, such a course is justifiable in view of the end to be obtained.

The affected portion of the rectum having been removed, and any wound of the peritoneum carefully closed with a continuous suture, one is now able to determine the feasibility of intestinal anastomosis. If there is a sufficient length of the lower end saved, and too much tension is not caused by approximating the parts, it certainly should be attempted, for if not successful in the entire circumference a great deal is gained by union of the anterior part. As to the best means of effecting this, there is not much to choose between a bone bobbin and a direct suture. He has tried Murphy's button, but does not think that it is suitable to this part of the intestinal canal, on account of the absence of a peritoneal coat to the lower portion, so that there can be no union of serous surfaces. Maunsell's method is of course out of the question. In cases where we can be tolerably certain of performing a satisfactory circular rectorrhaphy it would be well to leave the coccyx and segment of sacrum attached by one or other border; in other words, to form a bone flap, as in the method of Roux, so that after the intestinal suture the parts may be replaced before finally suturing the skin. If the position of the growth necessitates the removal of the anus, it is of course useless to attempt to close the wound, excepting in its upper part over the exposed sacrum. A few sutures should fix the end of the gut to the skin margin below the sacrum, or if thought better a ligature may be passed round the bowel to occlude it, fastened to the wound, and allowed to slough off, by

which means the wound is kept free from feces for some days. If rectorrhaphy has been done the wound should be well flushed with sublimate, and a little iodoform dusted in, especially about the intestinal junction, before closing it. The insertion of one or two drainage tubes is of advantage. When the wound is left open a firm packing of either bicyanide or iodoform gauze forms the best dressing. This operation is naturally often followed by considerable shock, for which stimulants, a warm bed, assiduous nursing, and possibly strychnine, will be required. As yet the author has not had to transfuse, but it might be necessary.

With regard to after-treatment, there is nothing special to be said; that is, speaking of simple excision cases, he does not trouble about the bowels; if they remain quiet for a week so much the better, but as a rule a motion is passed before this, perhaps in spite of opium given to relieve pain. Most patients begin to get up and about after a month, and at the end of two are practically well. Some form of truss may have to be worn where there is either prolapse or incontinence, the latter being not infrequent where rectorrhaphy has not been successfully carried out.

A summary of fourteen cases which the writer details gives two deaths—that is, a mortality of a little over fourteen per cent.; two recurrences—one in two years and one in four months; ten living and well, of whom one is in good health after five years, two in good health after nearly three years, one after one year and nine months, three after one year, one after six months, and one after three months; one case has not been seen since leaving the hospital.

E. H. Taylor, of Dublin, in an excellent article in the *Annals of Surgery* for April of this year, states that the mortality of this operation is from twenty to twenty-five per cent., while Cheyne, in his lectures already referred to, estimates it at from eighteen to twenty per cent. He says: "The mortality varies considerably between the perineal and sacral operations, being naturally higher for the latter." In this Edwards agrees, for out of many cases of perineal excision he has not had a death. He further says that König's total mortality is 38 per cent., Billroth's 34, Kocher's 28, Albert's 18; Iversen's estimate of Kraske's operation 25 per cent., and Czerny's 19.4 per cent. He has not been able to find any statistics regarding the work of British surgeons. Ball, in the second edition of his



work, states that he has had four cases, which were all cured; and Littlewood's three cases have already been mentioned. Allingham, in his last edition, says he has performed the operation several times, but with what result is not stated.

#### *THE PROGNOSIS AND TREATMENT OF ACUTE GENERAL PERITONITIS.*

ABBE, in an interesting contribution on this subject appearing in the *Medical News* for May 29, 1897, concludes that a study of the initial signs in cases which have come to operation and been proved has shown him that uniformity of symptoms is entirely wanting. A persistent diffused spreading to the opposite side of the abdomen is very grave. A board-like stiffness of both sides of the abdomen is suggestive. Tenderness at a point in the rectum as high as the finger can reach in the median line is a sure index of either an inflamed appendix hanging over the pelvic brim, or an acute peritonitis. A pulse that is very rapid and quick, or "snappy," is almost a sure index of septic toxemia, and if it persists more than twelve hours, calls for interference.

Vomiting will usually occur once with most mild attacks, but if persistent indicates mischief. The tongue may be clean and moist and the eye bright in one-third of the cases of grave peritonitis, even after two or three days.

The facies of abdominal inflammation is more often a late symptom. Thoracic respiration is very often seen when spreading peritonitis prevails.

The temperature is frequently but little elevated during the first day or two, while the pulse may be showing great agitation.

These danger signals may serve to aid diagnosis before profound toxemia sets in—when the surgeon can do nothing.

Regarding treatment, substantial progress has been made in determining the lines of action.

There is but one opinion regarding the cleansing of the abdominal cavity when only the lower segment has as yet been invaded. The moment the surgeon sees septic fluid, he sponges it away before it can be scattered. He mops the presenting bowels with sponges in clamps, dripping wet with hot salt solution (one and a half drachms to a quart), and dries them again before drawing other coils into the field of inspection. As soon as parts are found not much inflamed,

he pushes a sterilized gauze tampon, properly folded, among the bowels far away from the field of work. This has a tape sewed to it, to which a clamp is fixed and left outside the wound. One or two such tampons may be thrust upward and across the abdomen before the pelvis is cleansed, to which much attention is always to be given. This being thoroughly mopped out, a light packing of mild iodoform gauze is to be placed in the pelvis, and a short way among intestinal coils elsewhere, especially if the gauze tampon now removed prove to have come out wet, absorbing the thin effusion from a distance. The abdominal wound should never be closed in any septic case. It wastes time, confines infection, and prevents drainage.

In the grave cases a long median incision or two lateral ones will always be needed. The lumbar drainage incision will only be necessary when the median cut is used.

The question of drainage has been thoroughly settled in favor of ample gauze packing, as against rubber or glass tubes.

The lymph barrier quickly thrown out by the peritoneum wherever the gauze is in contact at once forms a boundary line, beyond which one process is going on, namely, absorption, destruction, and elimination of the marginal infection, already entrapped, while at the site of packing the current is reversed, and everything is sucked into the gauze and removed.

When infection has been widespread there is but one alternative—irrigation. By flushing the intestinal spaces systematically with hot salt water, as hot as the operator's hand can bear (which will be over 105°, usually), these effects are produced. The water cleanses and stimulates the patient amazingly. One sees the pulse respond at once and remain steady long after the operation, and the absorbing power of the washed endothelium is diminished. This has been shown by experiments of Kinscherf on animals, where doses of strychnine or bichloride of mercury left after irrigation were not absorbed, while the same put into the peritoneum of dogs not irrigated were fatal. Thus the toxin absorption is temporarily arrested, while the patient fights for time to discharge the burden already taken up.

In the large abdominal incisions in bad cases, it is wise to leave the wound widely open. The gauze will hold back the intestines, and abdominal straps and binder will support the abdominal walls.

If the intestines are distended with gas and fluid feces it is well to let them come out of the abdomen, receive them in hot towels in charge of an assistant, and prick one or two prominent places with a knife to evacuate gas and noxious excreta, which is washed away with a constant hot stream. Through one opening there should then be injected a syringeful of saturated solution of Epsom salts, and the puncture closed. The author has done this on three occasions during the past three years, but only in the very worst cases.

McCosh, however, advises in all bad cases to pass such a dose of salts through an aspirating needle into the bowel, and close the aperture with one suture—which Abbe heartily endorses as a routine procedure. It cannot be vomited, it excites downward peristalsis, and as it aids to carry off impurities, it proves of the greatest value.

In regurgitation, lavage of the stomach should be done before and after operation, and repeated as soon as regurgitation is renewed.

The rectal tube to relieve distention by gas is of inestimable value, and its use not infrequently marks the turning point in the disease by promoting downward peristalsis.

Some of the most brilliant recoveries the writer has had have been where the attending doctor has been ineffectually plying the patient with calomel or physic, which acted only after operation, or where a good dose of calomel taken after operation has rid the body of all noxious excretions on the second or third day.

The value of an ice coil, or light broad ice bags, after a general peritonitis, cannot be overlooked. He has great faith in cold thus used to retard the inflammatory action and bacterial growth, either before or after operation. Moreover, it is almost uniformly grateful to the patient.

Strychnine—one-fortieth grain every two hours—is sometimes necessary, and in cases of severe pain when the patient is well out of ether, morphine hypodermically is rather helpful than otherwise.

Close study of bad cases of general peritonitis shows it to be one of the most absolutely fatal maladies with which we have to deal. It has also been demonstrated that logically and statistically the earlier the operation on the lines delineated, the better the prognosis. It has been further shown that even in the bad form, if operation be done and a masterly irrigation carried out, there

still remains a chance for life if the period elapsing be not more than two and one-half days. In cases where albumen and casts show in the urine it is proof enough that the system is already overwhelmed, and the kidneys and other glands are choked, and the operation hopeless.

The burden of responsibility for fatal issues in so many cases lies not with the surgeon so much as with those who withhold from him the opportunity to render the prompt aid which has been shown to be the only chance. The ideal success may be accomplished in the future not more by new methods than by new opportunities. The ideal operation may be the old method under ideal circumstances as to time.

#### *SUTURE OF THE LATERAL SINUS.*

The suture of large veins when wounded is a surgical procedure which very recently has come into practice, and like the ligature and clamp to control hemorrhage, was suggested by the exigencies of operations, attempts being made by surgeons to preserve the patency of large veins in order to obviate the disadvantages—perhaps death—which would follow their closure. Successful experiments upon animals have been reported from time to time during the last eight years, and many surgeons have obtained good results by suturing the axillary, femoral, internal jugulars, and other large venous trunks. One of the most interesting of these successes was the suture of the inferior vena cava by SCHEDE, after its injury in an operation upon the kidney. At autopsy, some time later, it was seen that the stitches had held perfectly, and that the lumen of the vessel was well preserved. But so far as known, SCHWARTZ records (*Gaz. Heb. de Med. et de Chir.*, Oct. 22, 1896) the first successful attempt at suture of the lateral sinus. His patient was a man, aged twenty-six, who presented himself with necrosis and a sinus behind the left ear, following a kick from a horse, received three months before. At the operation (November 24, 1895) a piece of bone the size of a silver dollar was found depressed. It was adherent in part to the dura mater, and despite every care the lateral sinus was opened during its removal, a rent nearly half an inch in length being made. Hemorrhage was profuse, but when two fine silk stitches placed in the wounded vein were drawn tight, the bleeding was controlled. The wound was lightly tamponed with iodoform gauze, and the patient

made a good recovery. The central portion of the depressed area of bone was necrotic, and it was at this point that the adhesion to the sinus existed.—*Medical News*, May 29, 1897.

*A CASE OF RIGHT OVARIAN HERNIA,  
WITH TWISTED PEDICLE: OPER-  
ATION; RECOVERY.*

The persistence of the canal of Nuck, the great mobility of the ovary, and its comparatively high position in young children, sufficiently account for the fact that the presence of an ovary in a hernia is decidedly more frequent during the first twelve months than in the whole of the rest of life. The following case, however, is chiefly noteworthy from the partial strangulation from torsion which the herniated ovary had undergone. The condition is very rare and undoubtedly difficult to diagnose.

This case is detailed by Mr. JOHN H. MORGAN in *The Lancet* for May 15, 1897: An infant eight months old was admitted to the hospital on March 9, 1897, with a lump in the right groin. There was no history of hereditary disease, but it was of interest to note that a brother had died from strangulated hernia. The infant had always been delicate, and ever since she was four days old a small swelling had been observed in the right groin. Four days before admission this swelling underwent great increase in size, the skin over it became red, and the parts appeared to be very painful, the child screaming constantly and drawing up the right leg. She was convulsed on two occasions, but had not vomited, and the bowels were quite regular. A medical man was consulted, who advised removal to the hospital. On admission the child appeared to be very happy and peculiarly free from symptoms. The temperature was normal. On the right side of the upper part of the *mons veneris*, extending over the right external abdominal ring, there was a rounded, semi-elastic, non-fluctuating swelling, which was not altered in size when the child cried. On attempting to elicit fluctuation pain was produced, and very faint pitting of the skin on pressure could be made out. The child was very fat, but on further manipulation an indistinct, rounded, irreducible body about the size of a cherry could be felt, which could be freely moved about, having as it seemed no connection with the interior of the abdomen. The bowels had acted naturally and there was no sickness. She remained in the same condition until the 12th, when

Mr. Morgan decided to operate, and having made an oblique incision over the swelling, he exposed a thin-walled sac in which some dark fluid was seen to be contained. A small incision through this membrane allowed the escape of about one drachm of bloodstained fluid, leaving exposed a smooth, rounded, plum-colored body about the size and shape of a small damson. Attached to the upper end of this, which on closer inspection proved to be the ovary, was a slender pedicle twisted upon itself to the extent of two and a half turns. This stalk was found to consist of the right Fallopian tube and the broad ligament, and upon pulling them further outwards the fundus of the uterus entered the wound. The portion of the twisted pedicle, almost to its attachment to the uterus, was in a congested condition similar to that of the ovary. A fine silk ligature was passed round the pedicle beyond the congested part and tied, and the ovary and pedicle were cut off, and the uterus was dropped back into the abdomen. A suture was passed through the external abdominal ring and tied, and the surface wound was closed with a continuous horsehair suture. The child recovered without a bad symptom and was discharged with the wound perfectly healed on March 24.

*EXTIRPATION OF THE LACRIMAL SAC  
IN CASE OF DACROCYSTITIS.*

ROLLET (*Lyon Medical*, No. 18, 1897) holds that the immediate results of excision of the lacrimal sac for dacrocystitis are excellent when the operation is complete. After union is obtained by first intention the cure is complete in about six days; the wound heals by granulation in about two weeks. The cicatrix is insignificant. As to the remote results, there are two rare complications, namely, persistent inflammation, necessitating a new intervention and due usually to incomplete excision or epiphora, possibly requiring ablation of the lacrimal glands. These complications occur in about ten per cent. of cases. Though at first sight epiphora would be expected as a rule, lacrimation gradually ceases, since the hypersecretion of the tears, incident to the inflammation of the sac, ceases.

The author gives a minute description of technique, and states that the operation is indicated when dilatation and the other means of treatment, persisted in for a reasonable length of time, have failed.

## VAGINAL DOUCHING.

GILES (*The Lancet*, May 15, 1897) states that vaginal douching has become such a universal practise, both in the hands of the public and under the supervision of medical men and nurses, that it may be well to review briefly some of the circumstances in which it is required, and the most suitable solutions under varying conditions. At the outset it is necessary to raise a protest against unnecessary and too frequent douching. The researches of Winter, Döderlein and others have shown that the vagina is normally inhabited by a benign bacillus, to which, through the formation of lactic acid, the acidity of the vaginal secretion is due, and the special rôle of which appears to be to antagonize and disarm of virulence any pathogenic organisms that may enter the canal.

Frequent douching of the normal vagina, especially with soapy and other alkaline solutions, tends to hinder or arrest this beneficent action and to destroy the guardian bacillus. Hence, under the circumstances, morbid conditions are provoked rather than prevented. The same argument applies to the practice of giving a vaginal douche before or during labor, for when this is normal the uterine and vaginal secretions, followed by the rush of liquor amnii, tend to sweep the passages in the most effective way—namely, from within outward. Secondly, it is necessary to protest against a long-continued use of very hot douches, whether in health or otherwise. Frequently, in inflammatory and other conditions of the pelvic organs, the medical attendant orders douches "as hot as they can be borne." These have their place, and an important one, for their effect in relieving pain and pelvic congestion is often most marked; but this is provided they be used only as a temporary measure. Not infrequently no later directions are given, with the result that patients continue these hot irrigations, perhaps twice a day, for months, and the means intended for cure becomes instrumental in prolonging and emphasizing the complaint, by inducing chronic pelvic congestion with its consequent leucorrhea. The remedy is simple—namely, that patients should be instructed to regard a hot douche as a temporary expedient, to be replaced as symptoms improve by tepid, cool, and even cold irrigations.

The use of a douche for purposes of comfort and cleanliness must be left in large measure to the discretion of patients; but

they should be warned of the harm that may result from its too frequent use, as stated above. Therapeutically, the douche is indicated in three sets of conditions: (1) after labor; (2) after vaginal operations; and (3) in the treatment of inflammatory conditions of the vagina, uterus, and appendages.

1. After labor. When the labor has been normal, with little or no intervention on the part of the attendant, and when the puerperium is also normal, it is open to question whether any form of douche should be used. In skilled hands no harm can result, and, in lying-in institutions it is probably an advisable routine procedure; otherwise it is probably better omitted. In cases of post-partum uterine atony or hemorrhage a hot douche is indicated, and when there is reason to fear septic developments a course of douching with mild antiseptics is desirable. In actual septic conditions one or repeated injections of stronger antiseptics may be required.

2. After vaginal operations. Here it is usually necessary to resort to vaginal douches for one or several weeks, either to keep the passages clear of blood, which would tend to decompose and so hinder the healing of wounds, or because there has been much manipulative interference. An aseptic or mild antiseptic solution generally suffices; at times, in septic conditions, a strong antiseptic is needed.

3. In inflammatory conditions. In these cases the douching is generally performed, not by the medical attendant or nurse as in the previous conditions, but by the patient herself or a lay friend. Hence more discrimination is required in prescribing potent solutions. Usually a bland solution is all that is necessary; in a few cases, as in gonorrhea, some stronger antiseptic may be temporarily required.

The fluids to be used for vaginal douching fall into three categories: (1) neutral or aseptic; (2) mild antiseptic; and (3) powerful antiseptic.

1. Neutral or aseptic solutions. Of these the first is plain or sterilized water. For the relief of pelvic pain and congestion this answers perfectly. If a more astringent solution be required we may use alum, one to two drachms to the pint; acetate of lead, one ounce to the pint; chloride of lead, saturated solution; and permanganate of potash (Condy's fluid) in weak solutions. This is one of the most generally convenient on account of its portability and ready solubility.

2. Mild antiseptic solutions. Among these we may mention: boracic acid or borax, two drachms to the pint; sulpho-carbolate of zinc, two to three drachms to the pint; carbolic acid, 1 in 80 to 1 in 40; tincture of iodine, one drachm to the pint; Cond's fluid, two drachms to the pint; cresol, 1 in 250; lysol, 1 in 250; corrosive sublimate or the biniodide of mercury, 1 in 5000; or chinolol, 1 in 8000. Of these, boracic acid, sulpho-carbolate of zinc, and Cond's fluid are perhaps the favorites when prescribing a douche to be used by the patient. Chinolol is comparatively a newcomer, but answers very well. Carbolic acid and iodine are useful for hospital administration. The poisonous character of corrosive sublimate is a contraindication to its indiscriminate use. For milder purposes other things answer as well, and in stronger solutions it should not be used except by the medical attendant. Lysol has the disadvantage of not being readily portable.

3. Powerful antiseptics. These are required after operations, and in obstetric practise, under septic conditions, and in the treatment of gonorrhea and septic conditions of the vagina and uterus. The most important are: carbolic acid, 1 in 40 to 1 in 20; iodine liniment, one to two drachms to the pint; corrosive sublimate, 1 in 1000 to 1 in 4000; and chinolol, 1 in 1000 to 1 in 8000. Of the first three we need not speak in detail, as their merits and demerits are well known. The desideratum is a material that shall be portable, readily soluble, non-toxic, and at the same time a powerful antiseptic. From this point of view a few words may be said about chinolol, which answers these requirements and which, being a comparatively new drug, may possibly not be familiar to practitioners in this country, though used a good deal on the Continent. It is a light yellow powder which belongs to the quinoline group, and is readily soluble in all proportions of water. It is non-poisonous, and for this reason it is especially suitable for use by patients themselves, and its antiseptic action appears to be considerable, being at least equal to that of corrosive sublimate. Where albuminous fluids are concerned chinolol appears to be superior to the sublimate, inasmuch as it does not coagulate albumen; corrosive sublimate, on the other hand, forms an insoluble albuminate of mercury, whereby the antiseptic action is interfered with. Chinolol resembles iodoform in appearance; and if it is intended to be used in dressings or on tampons, as a substitute for iodoform, the chinolol powder re-

quires to be diluted with boracic acid in the proportion of one part of chinolol to five or ten parts of boracic acid.

When strong antiseptic solutions are required for vaginal douching, corrosive sublimate, carbolic acid, and iodine should be used only by the medical attendant; chinolol for use by the patients themselves.

#### *SILVER WIRE AS A SUTURE IN SURGERY.*

Nearly half a century has elapsed since J. Marion Sims conceived the idea of using silver wire as a suture in the treatment of vesico-vaginal fistula. No sooner was the idea grasped than his fertile mind began devising ways and means for putting it into application, and a willing patient promptly submitted to its experimental use. After twenty-nine failures with various suture material, the thirtieth operation, performed upon this woman, proved permanently successful.

Not only was this the first case in which a cure was achieved by this distinguished surgeon, but it was the first successful operation for the relief of a vesico-vaginal fistula ever performed in the history of surgery. No wonder, then, that Dr. Sims attributed the brilliant result to the one new factor, silver wire; and no wonder, also, when similar results crowned his efforts in succeeding operations done with the same suture material, he stood ready to announce the edict that the use of silver as a suture was the great surgical achievement of the nineteenth century.

Undoubtedly the use of silver wire in those early cases, with only the crude appliances which he himself devised, and before anything was known of sepsis and asepsis in surgical work, was the factor which gave him success. Why it succeeded in the very cases in which silk suture had failed, was only explicable to him on the ground that silk acted as a seton, while silver did not. The immediate followers of Dr. Sims accepted his edict that silver wire was the only suture that could be used successfully in vesico-vaginal fistula, and used it without further inquiry into the rationale of its action.

As the operation became better understood, and specula and other instruments better adapted to their purpose came into use, operators in various fields were able to secure satisfactory results with suture material other than silver wire; so the sentiment gradually grew that Dr. Sims' success was due rather to the fact that he had better

facilities for doing his operation, and had attained greater skill, than to the nature of the suture material.

Within the past year, however, a satisfactory explanation of the success attending the use of silver wire as a suture has come most unexpectedly from a foreign source. Dr. B. Crede, attending surgeon to the Carola Hospital of Dresden, in an address delivered before the National Surgical Society of Germany, at its twenty-fifth annual convention, held in Berlin on May 28, 1896, discussed silver and its salts, the citrate and lactate, which he termed the itrol and actol, and pronounced them the most powerful of all the surgical antiseptics yet discovered. It appears that his interest in silver as an antiseptic grew out of the observations of his father, the elder Crede, on the value of the nitrate of silver in the treatment of inflammatory affections of the eyelids of infants. Nitrate of silver was not a success as a surgical dressing, however, on account of its chemical instability and its corrosive action on mucous membranes. While visiting the Johns Hopkins Hospital, in Baltimore, Dr. Crede was impressed with the use of silver foil as employed by Dr. Halstead, in affording an antiseptic covering for small or closed wounds. His next experiment, therefore, was made with metallic silver, using it as an antiseptic dressing for wounds. When applied to a sterile wound, he found that it remained unchanged, was non-irritating, and formed a thoroughly aseptic dressing. On the other hand, when applied to an infected wound, the products of bacterial life oxidized the surface of the silver, and, entering into combination with the argentic oxide, formed argentic albuminates which had powerful antiseptic properties. Careful analysis developed the fact that it was lactic acid which was developed in the microbic secretions, and when this combined with the silver oxide there developed a lactate of silver, and in this resided the antiseptic properties.

In this discovery lies the explanation of the value of silver wire as a suture. In aseptic, sterile wounds it is non-irritating and remains unchanged. In infected wounds it supplies in itself the base of a powerful antiseptic, combining with lactic acid, and forming thus in the tissues the lactate of silver.

The experience here recorded illustrates the principle so often insisted upon, that clinical observation has its legitimate field and is a faithful guide, although the scientific explanation of the conditions and results ob-

served are not, at the time, susceptible of a rational explanation. Sims' prophetic soul rested in the belief that some day a rational explanation of the fact he asserted would be forthcoming, and in this recent discovery of Crede it seems to be fulfilled.—*Medical News*, May 29, 1897.

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*THE TREATMENT OF CHRONIC FRONTAL  
SINUSITIS AND CONSECUTIVE  
BRAIN LESION.*

BOTEY (*Annales des Maladies de L'Oreille, du Larynx, etc.*, No. 5, 1897) concludes a paper upon this subject as follows: In the case of frontal sinusitis with complete or partial retention of pus, the frontal sinus should be trephined promptly; having been opened, scraped and disinfected, communication should be established with the middle nasal canal by destroying the inferior wall of the sinus and by enlarging the nasal frontal canal. Thus the cavity is drained without requiring the use of a tube, and the opening may be closed. When cerebral troubles develop, such as somnolence and vomiting, etc., perforation of the posterior wall of the sinus may be suspected, with penetration of pus into the cranium. Under such circumstances the posterior wall of the sinus should be opened freely, the granulations should be scraped away, the dura mater should be thoroughly cleansed and explored with a trocar thrust into the encephalon—a procedure without danger if antiseptic precautions are observed. The lesion is curable if the cerebrum is not involved, and even if inflammation has extended to this structure cure can be expected, provided the intervention is speedy and bold. In case of obstruction to the naso-frontal passage, and the perforation of the posterior wall of the sinus, with or without cerebral hernia, the frontal wound should not be closed, since infection may then travel from the nose. The cerebral substance should not be irrigated either with sublimate or carbolic acid, but with a sterilized solution of boric acid.

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*OPEN MEASURES IN THE TREATMENT  
OF SO-CALLED SIMPLE AND COM-  
POUND FRACTURES.*

OSCAR H. ALLIS in the *Annals of Surgery* for June, 1897, publishes a practical and interesting contribution to the literature on this subject.

He states that all conceivable fractures were formerly divided into two general

classes, simple and compound. If the skin were not broken—or if broken, if the wound did not communicate with the seat of fracture—the injury was denominated a simple fracture, in contradistinction to all other fractures in which a wound in the skin communicated with the seat of fracture, and this class was called compound.

The treatment for the simple fracture was to approximate the fragments, immobilize them, control undue tendency to inflammation, and finally, with repair, to reestablish the function of the limb.

The treatment of compound fractures was to immediately convert the compound into a simple fracture, and proceed as with simple fractures. Should there be a protruding fragment which resisted all efforts at reduction, saw it off and close the wound. Thus, in a few crisp, axiomatic sentences, the treatment of the whole range of fracture-injuries was placed within the grasp of the student.

There are few who will read these lines that cannot verify their accuracy, and none who read them can instance a greater contrast in the treatment of any surgical affection than the treatment just rehearsed—*i. e.*, the treatment of fractures in former times—compared with their treatment to-day.

Let us take as an example a fracture of both bones of the leg. There is a small wound communicating with the seat of fracture, half or a quarter of an inch in length. The surgeon of to-day cleanses the skin and surrounding parts, isolates the field of operation, freely enlarges the wound in the skin, superficial and deep fascias, until he reaches the seat of fracture and can inspect as well as explore the region of injury. If there are fragments of bone he removes them, if they are likely to interfere with repair; if there are bleeding vessels he secures them. Then, with the best possible exposure of the part, he washes it with pure or medicated water until he has cleansed it of all pollution; and, finally, secures coaptation, not by the awkward and unsatisfactory medium of splints, but by direct coaptation by means of screws, pegs, or some approximating material. Then, without even approximating the soft parts by sutures,—or if at all, but loosely,—the wound is dressed with sterile materials best adapted to absorb any exudation, and the whole enclosed in a plaster-of-Paris dressing and swung from a cradle, or placed upon a soft pillow.

Result, one dressing, and only one, from first to last, and with the removal of this, at

the expiration of six to eight weeks, the wound has closed, the bones have united, and the patient is well. No greater triumph for modern surgery!

Contrast such a case with the not infrequent result of a compound fracture in former days. Though the wound healed promptly, swelling soon began to extend from ankle to knee, pus dissected its way through all the parts, until finally an opening was made either spontaneously or by the surgeon, and a pint of pus found exit. Then followed the long term of healing, the wasted muscles, necrosed bone, with often, as a final result, the amputation of the limb as the best possible compromise.

Right here one is met by the interrogatory, Does any one treat compound fractures to-day as they were treated a score of years ago? Is not the student everywhere taught to sterilize the wound and surrounding parts and dress it antiseptically? The answer is Yes; but what the author claims is that the student has learned but half a truth. He regards the wound as an infected wound, but he fails to realize that at the deepest part of that wound—the parts surrounding the fragments of bone and periosteum—his disinfectant cannot reach, and that with all his care in dressing he has done little more for the unfortunate man than was done in pre-Listerian days. What hospital surgeon cannot bear testimony to the accuracy of this statement? What surgeon has not been told on entering his wards that a case of compound fracture has been admitted, the wound syringed out with bichloride, sutured, and dressed antiseptically, and the whole immobilized? And all this is said with an air that betokens a full up-to-date appreciation of the proper thing to do! Some of these cases will do well, and the same is true of some compound fractures treated a score of years ago.

Take a similar injury to the leg, both bones broken but the skin intact. What is the condition? It differs from the former in only one respect, *viz.*, it is not directly infected. In every other respect they are identical. The same laceration of periosteum, deep and superficial fasciæ, the same outpouring of blood between the fragments and muscles, the same displacement of bone fragments. And the question arises, How shall we proceed? In precisely the same way as if the skin were broken. Open up the part with a free incision, carefully divide the deep fascia to the full extent of the seat of frac-

ture, or, better, to the full extent of the external wound; then cleanse the wound of clots, ligate bleeding vessels, repair injured nerves, wire or directly immobilize the fragments, dress without suturing, and encase in plaster as before.

Dr. Allis does not wish to be understood as resorting to open measures in all simple fractures. Such an impression would be very foreign to his honest convictions, as well as to sound surgical practise. What he urges is that very many so-called simple fractures are as grave as the more dreaded compound fracture, and cannot possibly be scientifically treated by other than open measures. Open measures are often unnecessary, would often be injudicious, and yet he claims that they are the only measures that are entitled to the term scientific.

This brings us naturally to the question, Should the terms "simple" and "compound" be retained in classification of fractures? In the light of modern surgery, when there is every rational ground for open measures, shall the term "simple" be retained?

This term has a meaning to the patient, to a prosecuting attorney, and to a jury, that may be foreign to the lecture-room. When a limb shrivels from a pierced nerve, or dangles like a flail from non-union, it reacts with overwhelming force against the attending medical officer. When it is said that he assured the patient, as he undertook the case, that it was only a simple fracture, the argument is that if it had been a simple fracture it would have healed, but through the ignorance of the doctor a very serious fracture had been mistaken for a simple fracture. Nor is such a charge chiefly to be preferred against the general practitioner. It can with equal justice be said of the hospital surgeon. Whoever treats a fracture with unbroken skin must confess that he has treated it ignorantly. Allis has seen six fractures of the elbow-joint, all simple, that resulted in total loss of function of the forearm and hand, and one of them occurred in the hands of Philadelphia's foremost hospital surgeons. Nor was there any evidence of the gravity of the original injury in any of the cases to create a suspicion on the part of the medical attendant of so serious a result. The writer within two years has had two cases of non-union of fracture occur in his own practise, both simple, both under his complete control; the one a femur, the other a humerus. And when later he resorted to open measures he found the cause of non-union to be muscle interposed between

the fragments, a condition that could not possibly be detected by palpation and manipulation at the time of setting the limbs, though both were set under the influence of an anæsthetic. There is nothing simple about a fracture from a surgical standpoint, and, furthermore, as a definition it is both misleading and impolitic, and should be abandoned.

In the selection of substitute words no one can tell what will become the most popular. The terms "open" and "closed" have been advocated; they are certainly easily spoken, easily remembered, familiar, and not open to the objection that they are misleading. To the author's mind, better terms, though less familiar, are "infected" and "non-infected."

#### *SUCCESSFUL SUTURE OF A PENETRATING WOUND OF THE HEART.*

At a recent meeting of the German Surgical Society REHN (*Deutsche Med. Woch.*, May 6, 1897, p. 88) reported the case of a man twenty-two years old who was stabbed with a knife in the left chest and came under observation in a most unfavorable condition, with dyspnea and cyanosis, almost pulseless, and covered with blood. A wound was found in the left fourth intercostal space. The area of cardiac percussion dulness was increased to the right; the heart-sounds were clear. On the following day the condition of the patient had improved, but the area of cardiac dulness had increased. On the third day the condition had grown worse, the pulse failing and the respiration becoming greatly accelerated. The area of cardiac dulness had increased still more and the patient appeared moribund. Operation was decided upon, and an incision was made in the fourth intercostal space, the fifth rib also being divided, and the pericardium exposed. When the wound in this sac was enlarged a large clot was encountered, and an incised wound of the right ventricle 1.5 centimeters long was found. No blood escaped during systole, and it was possible to compress the wound with a finger without embarrassing the action of the heart. Three silk sutures were introduced during diastole and the hemorrhage ceased. The pleura was irrigated with saline solution and, together with the pericardium, packed with gauze. Immediately after the operation pulse and respiration were better. The surgical progress of the case was complicated by purulent pleurisy, necessitating later reopening of the pleura. Except for slightly increased activity of the heart, the condition



of the patient was an excellent one seven months after the accident.—*Journal of the American Medical Association*, May 29, 1897.

#### SURGICAL SIGNIFICANCE OF GALL-STONES.

Dr. F. LANGE, before the Johns Hopkins Hospital Medical Society, offered the following as the outgrowth of a large experience in the treatment of hepatic calculus: In operating, his preferences have led him to entirely abandon the longitudinal incision; but, according to the proposition of Covisart and the experience of other surgeons, as reported in the *Hospital Bulletin*, he further says he does exclusively the operation parallel to the border of the ribs. Correspondingly to the thickness of the abdominal wall, this incision must occasionally be a very large one. A very great difficulty must occasionally be met with through the smallness of the liver. It is a mistaken idea that in consequence of stagnation of bile the liver must be enlarged. On the contrary, he has had the experience that in occlusion of the common duct of long duration, probably through the influence of pressure, an atrophic condition of the liver-tissue will take place, and occasionally the liver will be concealed high up behind the ribs, and this may cause a great deal of difficulty in consequence of the high and deep position of the field of operation. In eight of these cases he has excised the adjacent cartilages of the ribs, and he would like to commend that. It facilitates the operation very much. On the other hand, the enlargement of the liver may be a great hindrance, and especially in fat and plump persons of short build, it may be quite difficult to get down to the common duct. In one of the cases he was unable, in spite of the excision of the ribs, to get effectually down to the point of the trouble, and not until he had pulled the liver out of the incision as far as he could—almost one-third of the liver substance being brought outside of the abdominal wall—was he able to easily get to the cystic and common ducts. In this case he was obliged to open the cystic duct at two different points, and besides that, the common duct at the usual place about the middle of its course. In the cases of acute inflammation it is necessary, whenever one has reason to presume that the neighborhood of the gall-bladder is infected, to keep everything as open as possible and give entirely free outlet for the peritoneal

secretions. At the same time he always drains the gall-bladder with a long tube, with the view of having a siphon action upon the secreted gall, and this will act very effectually. Occasionally a blockade will take place through mucus or blood clot, and then it will be necessary to change the tube or make a cautious washing through it. He would advise against the injection of any irritating antiseptic solution into the gall-bladder. He has observed that occasionally this fluid will cause distressing symptoms, attacks of colic, probably because it may get into the common duct and the hepatic duct and cause irritation. He only uses saline solution or boiled water. He has always found that the bile itself was an antiseptic agent. After a short time the amount of purulent secretion is insignificant, and the healing of the abdominal wounds, although constantly in contact with the bile, is mostly uneventful and without any untoward symptoms.

About stones in the liver substance he has no practical experience. He once found a stone in the liver after it had perforated the walls of the gall-bladder, but he has not had any experience with stones in the liver that have formed in the gall-system above the hepatic duct. It is a fact that these stones will occur—that occasionally quite extensive casts of stone formation will take place in the gall-system. He does not mention comparatively frequent uncomplicated cases, where we have to deal with dilated gall-bladder and stones, and where the surgical treatment is comparatively simple. He never does the operation in two sittings. He finds that it is entirely safe to operate in one sitting. He has always aspirated as much as possible of the contents of the gall-bladder through a thick aspirating needle, protecting the surroundings as cautiously as possible to guard against infection.

He thinks that in some of his cases he has reason to assume that there is some valve action, especially in one case of stone in the common duct, of small size. The patient had had an attack of gall-stone some three months before this attack, with jaundice lasting several weeks, most likely because of obstruction from this stone, which was solitary, as judged by its very round, regular shape. Probably after a time this stone shifted back, and later on again caused obstruction, together with an infection. This we see not uncommonly in cases of obstruction of the common duct. Even if the stones are ball-like or rounded, at intervals a certain amount

of bile will get into the gut. It is almost characteristic that if, in prolonged jaundice, at intervals the condition of the feces and the urine points to the passage of a certain amount of bile through the duct, we have probably to deal with obstruction from stone. Regarding the drainage of the common duct he has tried everything; he has left the duct entirely opened, and has sewed it up with the insertion of a small drainage tube into the lumen of the duct, and he has sewed it up entirely. In cases where the common duct is healthy he thinks it preferable, if it can be done, to sew up the duct entirely. If there is reason to assume that there is obstruction beyond the stone, he would prefer to drain, and he does this in such a way that he inserts a small drainage tube from the wound in the common duct and packs gauze around it. This gauze (iodoform gauze boiled in glycerin) he leaves in for five or six days. The tube he leaves for a sufficiently long time to secure the proper outlet of any secretion as long as it exists. In draining a gall-bladder he packs the gauze around the tube and leaves the opening comparatively large, for the reason that, at least in inflammatory cases, the surface of the gall-bladder is such that it will necessitate some thorough cleansing and local treatment for a limited time. There will be clots of blood or shreds of tissue or inspissated mucus which might easily obstruct. He mostly removes this tampon in two or three days, and gives the inside of the gall-bladder an additional thorough washing and cleansing. Besides this he has either sewed the peritoneum to the surface of the gall-bladder where there was no infection outside of it, or he packed around the circumference of the gall-bladder in such a way that even if some of the contents of the bladder escaped it was not likely to cause a spreading inflammation. A very serious complication that has led to fatal issue in several of his cases of advanced cholemia is an inclination of the patient to bleeding. Three of his cases he has lost from secondary hemorrhages. Two of these cases were complicated with malignant disease of the pancreas. Necropsies were not made, and he could only say that he felt in the region of the head of the pancreas a resistant hard mass which he took for malignant affection. Lately Professor Riedel, a surgeon who has perhaps worked more in gall-surgery than any other man living, has published cases in which he is inclined to assume that occasionally these apparently malignant thickenings of the pancreas may be

but inflammatory thickenings, and he mentions one case which seems to be beyond any doubt. In an elderly gentleman, in whom the operation was abandoned, assuming that this was a case of cancer of the pancreas, the stones merely were removed. A fatal issue was awaited, but the patient lived for years and became healthy and strong, and there could be no question about his not having malignant disease. He assumes that through the presence of stones an irritation is kept up in the pancreas, and that this irritation, after the removal of the stone, may cease and the condition improve. The author lost one of these cases by the separation of the Murphy button after establishing cholecystenterotomy. The patient had up to that time had small hemorrhages from the inside of the gall-bladder. The author purposely kept the gall-bladder open, stitched to the abdominal wall, because he had the impression that this would probably be a case of bleeding, and in order to tampon and make counter-pressure he kept the gall-bladder open and was able up to the tenth or eleventh day to check the bleeding, but after the separation the patient had a profuse hemorrhage into the large intestine, and succumbed to anemia.—*Journal of the American Medical Association*, May 29, 1897.

#### *THE USE OF CANTHARIDES AS A REMEDY FOR ANASARCA.*

MYSZYNSKA (*Gaz. Heb.*, 11 Av., 1897) states that the use of cantharides as a remedy in anasarca is of extreme antiquity, dating back to Hippocrates. Encouraged by the results of Cazal, who in 1895 reported five absolute cures of acute nephritis by means of tincture of cantharides, the author made use of Barth's service to investigate the effect of this drug in diseases of the kidneys. He first treated ten cases of acute nephritis, administering the drug in doses of from six to eleven drops given in a glass of milk. In the first case persistent albuminuria in a person affected with malaria was completely and rapidly cured. The next case was one which had resisted treatment for seventeen months, the patient being tuberculous. This patient was greatly improved, the tubercular lesion cicatrizing. Three other cases were markedly improved, but disappeared before treatment could be completed. In two pronounced cases complicated by marked arterio-sclerosis, albuminuria was increased by the drug and the symptoms were aggravated. In two other cases of marked nephritis no other effects

were observed. In one tubercular case albuminuria was increased and the temperature was unfavorably affected. In eight out of the ten cases treated by tincture of cantharides diuresis was markedly increased. In all the patients the appetite was markedly increased, sometimes to an astonishing degree, and was not accompanied by any digestive troubles.

The author concludes that cantharides is a remarkable diuretic and a powerful drug in the treatment of refractory albuminuria, especially in recent acute nephritis. It should be given with periods of repose, and should be avoided in cases of arterio-sclerosis.

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*INJECTION OF ANTISTREPTOCOCCIC SERUM  
IN CASES OF OPERATION  
INVOLVING SUBSEQUENT  
SEPSIS.*

WATSON CHEYNE (*Practitioner*, April, 1897, p. 347) accounts for the great variation in the reported results of the treatment of septic trouble by antistreptococcic serum by the acute character of the diseases set up by the streptococcus pyogenes; irremediable damage is done to the body before the immunizing material has time to produce its effect, or, as in two of his own cases, though the local process is arrested the general temperature is not improved, nor the life of the patient preserved. Experimental evidence is strongly in favor of the prophylactic action of injections of antistreptococcic serum; he thinks their use should not be confined to cases in which infection has already occurred, and that it is in prophylaxis that they will be found most valuable, and especially in operations about the tongue or throat in which septic pneumonia engendered in most if not in all cases of the streptococcus pyogenes is frequently the cause of death. In a recent case of carcinoma involving the base of the tongue, the anterior pillar of the fauces, the tonsil, and also the large glands in the anterior triangle of the neck, Cheyne, on the two days before operating, injected twenty centimeters and ten centimeters of antistreptococcic serum; and after a preliminary tracheotomy extirpated the glands, ligatured the external carotid, split the cheek, and removed the diseased parts of the mouth and throat. Ligature of the external carotid greatly facilitates such an operation and diminishes the immediate danger, but is a very fatal proceeding owing to sloughing and secondary hemorrhage. Here

there was nothing of the kind. The progress of the case was very remarkable; after the first twenty-four hours there was no elevation of temperature; a rise, evidently an after-effect of the serum, occurred some days later; there was no septic pneumonia, no tendency to septic infection, no inflammation, no sloughing of the surface of the wound; there was an almost entire absence of smell in the breath. Healing was quite uninterrupted. In a case of malignant disease of the left side of the lower jaw, inside of the cheek, and anterior pillar of the fauces, and extending to the alveolar process of the upper jaw and some small cervical glands, injections of twenty centimeters were made on February 15 and 16, and one of ten centimeters on the 17th, a few hours before the operation. The skin healed by first intention, and the wound in the mouth rapidly granulated without any sloughing; there was no elevation of temperature after the first twenty-four hours, and then it did not exceed 100.4°, and the case was most striking from its absolute freedom from septic complication. In a third case, after preliminary extirpation of a large mass of glands from the neck, ninety centimeters was injected during the four days preceding the removal of the tongue. There was the same freedom from septic trouble, and the same absence of smell, and everything promised well till the patient suddenly expired. An embolus detached from a thrombus in the lingual artery, which had extended into the carotid, had lodged in the brain. Though a certain amount of sloughing was found at the back of the wound, the greater part was quite clean and free, and there is no reason to doubt that but for this unfortunate accident healing would have been uninterrupted. Extensive operations will be far more feasible if the septic pneumonia and the diffuse septic processes so apt to follow them can be prevented by the prophylactic use of antistreptococcic serum.—*British Medical Journal*, May 15, 1897.

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*COLLES' FRACTURE.*

Dr. STORP (*Archiv. f. Klin. Chirurg.*, bd. 53) employs a simple method of treatment which is essentially the same as was advocated many years ago by Sir Astley Cooper.

Storp has treated one hundred and four patients in this manner: A strip of rubber plaster 2½ inches wide is wound about the arm just above the wrist-joint. A second piece is placed exactly over the first, a fold

being made in it on the radial side, which stands out far enough from the arm to allow a large hole to be made in it. Through this hole a string is passed, and the arm is held high up on the chest, the hand dropped downward toward the ulnar side. The treatment is at first rather painful, but if the arm is kept high up venous congestion is avoided, and the pain becomes much less. The plaster is removed in ten days and the hand simply placed in a sling, while the patient is advised to use it carefully. In a few of Storp's cases in which there was extensive hemorrhage massage was employed. The average duration of treatment was three weeks, while fourteen to eighteen days sufficed in patients under twenty years of age. The results were exceptionally good. Of the ninety-five cases in which directions were carried out, the arms of ninety-one were completely restored in appearance as well as function; in four the functional result was good, but there was a slight radial deformity in three cases, and a rather marked radial deformity in the fourth. —*International Journal of Surgery*, June, 1897.

#### ANESTHESIA OF THE POSTERIOR URETHRA.

SCHARFF (*Centralblatt für die Krankheit der Harn. u. Sex.-Org.*, vol. 8, 1897) states that the posterior urethra can be rendered absolutely non-sensitive by the following rectal injection:

- ℞ Morphine hydrochlorate, 3 grains.
- Atropine sulphate, 1-10 grain.
- Distilled water, 2 fluidounces.

From half a drachm to a drachm of the solution made in these proportions is injected into the rectum.

#### HEPATIC FISTULA SUCCESSFULLY CLOSED AFTER SIXTEEN MONTHS.

MOIR reports the following case in the *British Medical Journal* for April 24, 1897:

An Armenian aged twenty-seven years, while employed in railway construction at Selangor in the Straits Settlements about the middle of December, 1893, began to suffer from what eventually proved to be an abscess of the liver. He was admitted into hospital at the end of January, 1894. Early in March he was operated on for an abscess of the liver. Six weeks later he was discharged apparently cured, the wound having closed. He sailed for Singapore, but the

wound reopened on the voyage, and there was a copious purulent discharge. On arrival at Singapore he went into hospital, and a drainage-tube was inserted. The wound was again healed by the end of June. After remaining six weeks longer the sinus reopened and again began to discharge pus. Accordingly he sailed for Calcutta, and was admitted into the hospital on September 4, 1894. No antecedent history of dysentery or drink could be elicited. On admission he was in rather a reduced condition, weighing only 123 pounds. The liver was of natural size, but there was a hepatic fistula discharging unhealthy pus in the eighth intercostal space and pretty far back into the infra-axillary region. On September 6th the first attempt to close the sinus was made. An incision was made to explore for dead bone, but the ribs were quite healthy. After a little manipulation the fistula was found to be very narrow, slightly tortuous, and six inches long. Its track was dilated so as to admit a long and narrow drainage-tube. On the 10th the patient was transferred to Moir's wards and continued as his patient until he finally left the hospital in October, 1895. Syringing with iodine lotion and insufflation with iodoform were tried, but ineffectually. Then on September 28th, 1894, an inch and a half of the eighth rib was resected in the region of the fistula. The channel was over six inches, very narrow (admitting only a fine probe or a knitting needle), and had dense walls which felt almost cartilaginous in consistence. In its course the fistula traversed the pleural cavity (the pleura being adherent around it), the diaphragm, and a considerable thickness of liver tissue near the upper surface of the right lobe. The track was dilated gradually with some difficulty, until finally a cavity was reached. The finger could just reach this cavity; but it was estimated, with the help of instruments, that it was about the size of a hen's egg, and that it had thick walls. A collection of pus, caseous material, and sloughy tissue was removed by a long-handled Volkmann's spoon. A drainage-tube having a diameter of three-quarters of an inch was inserted. For the next two or three days the patient suffered from acute epigastric pain, nausea, and vomiting; but after October 1st, there was no further trouble. Up to the end of November his physical condition was good, and he weighed 138 pounds, having gained over a stone; but the fistula would not heal, and at this time was two and a half inches long.

Although the discharge had become scanty it frequently contained bile and mucus for several days at a time—and the bile seemed to retard healing. Various solutions were tried for syringing the fistula—*e.g.*, carbolic acid, perchloride of mercury, boric acid, thymol, iodine, iodoform in ether, and sulphate of zinc. The tube was gradually shortened, then smaller tubes were substituted, and finally when the fistula narrowed a strip of lint was inserted. Bark and ammonia and hypophosphites were given, and on several occasions sponge grafting was tried, but nothing succeeded. In December he began to lose ground again, and the length of the fistula varied from three to four inches. The discharge contained flaky pus, occasionally bile, and tenacious glairy mucus. The wound was syringed twice, sometimes thrice, a day. This improved the character of the discharge. On December 18th an incision was made through the former cicatrix, and the fistula was slit up and dilated. The cavity was now smaller and more shallow, and so could be better explored by the finger. The dense connective tissue lining the walls of the fistula and cavity for the entire length of the track was thoroughly scraped with a Volkmann's spoon and the debris removed; then the entire raw surface was well swabbed with a solution of chloride of zinc (forty grains to the ounce) and a large drainage tube was introduced. This operation was not attended with any serious hemorrhage. That night and next day there was cough, bilious vomiting, and epigastric pain. The drainage-tube seemed to irritate the diaphragm, but after the first two days he had little pain or discomfort. In January, 1895, he began to improve again. The fistula became smaller and the discharge less; but still the dressings were often bile-stained. Quinine and iron, nitro-muriatic acid, and nuxvomica were administered. During February his general health was excellent, but the fistula remained much the same. Syringing and insufflation were discontinued, and a probe covered with cotton-wool and dipped in compound tincture of benzoin was daily inserted in the fistula. This proved more efficacious than anything hitherto tried; still, the track would not close, and the discharge contained bile at intervals. In March the same treatment was continued and the discharge almost ceased, but the fistula was still nearly two inches in depth, so on March 22d he was sent on a voyage in the hope that the change and sea air might prove beneficial.

He returned to hospital on May 24th. The trip had apparently done him more harm than good. He looked worse and said he had felt miserable all the time that he was at sea. The sinus was two and a half inches long and had been constantly discharging bile, mucus, and pus. His weight was 131 pounds. He was given a tonic mixture, the wound was dusted with alum and iodoform, and a dry dressing of perchloride of mercury was applied. Early in June minute particles of nitrate of silver were inserted into the fistula, which remained about two inches long and continued to discharge bile occasionally. His weight rose to 136½ pounds. On June 8th a probe heated red-hot was introduced and the walls of the track were thoroughly cauterized. This was the only operation which was followed by fever, and the febrile reaction was severe. Next day his temperature rose to 102° F., on the following day it varied from 100° to 104.2°, on the 11th from 101° to 104°, and on the 12th from 101.8° to 105.4° F. He was very restless and suffered from intense headache, and the discharge was profuse, greenish, and viscid. On that day he developed acute orchitis and epididymitis without any obvious cause. This was treated by free leeching and an evaporating lotion. By June 18th the fever had quite left him and he again began to improve, but the fistula had increased to three inches. The right testis remained large, and on the 22d fluctuation was discovered, and his temperature again began to rise. An abscess in the globus major of the epididymis was incised and drained. He was given a mixture of strychnine and iron, with sulphate of magnesia occasionally, and powdered boric acid was applied to the fistula, and a dry dressing. Early in July an emulsion of eucalyptus oil was injected into the fistula, which was again two and a half inches long. The track began to contract rapidly, and by July 8 the fistula was occluded and there was no discharge. The fistula soon firmly healed and subsequently gave no further trouble. He remained under observation until September 16, when he was discharged feeling perfectly well and strong. But four days later he was readmitted suffering from an anal abscess, which was incised on the day after admission and the wound healed readily. He was finally discharged on October 7, 1895, at which time the scar of the hepatic fistula was quite firm and the liver seemed sound.

This case is of some interest owing to its

obstinate course, to the number of operations performed, and to the intercurrent complications. The persistence for sixteen months of a hepatic fistula, after an abscess of the liver was opened, illustrates the evil of the too early removal of the drainage-tube. Probably, also, too small a tube was used in the first instance. For the drainage of an abscess of the liver the larger the tube the better, and there should never be any hurry to dispense with the tube. *Festina lente* is just as important a principle in the after-treatment of an abscess of the liver as is the avoidance of delay in operating when once the abscess has been diagnosed. Quite a variety of causes were at work to prevent the closure of the fistula: (1) There was the absence of surgical rest owing to the cavity and fistula having such close relations to the diaphragm, a muscle which is never at rest; (2) the course of the fistula was somewhat tortuous through the various layers of liver, peritoneum, diaphragm, pleura, intercostal muscles, and skin; (3) there resulted consequently an ill-drained cavity at the end of a long and sinuous passage, which would not heal owing to retained sloughs; (4) the escape of bile and mucus from time to time through the fistula caused irritation and retarded union; and (5) the chronic nature of the case tended to further the formation of a lining of dense cicatricial tissue in the walls of the fistula, which, until it was destroyed, of itself precluded the possibility of closure.

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*EXTROVERSION OF BLADDER TREATED  
BY LEFT NEPHRECTOMY AND  
TRANSPLANTATION OF THE  
RIGHT URETER THROUGH  
THE LOIN.*

REGINALD HARRISON (*Medical Record*, May 1, 1897) details an interesting case.

The subject of the treatment the author is about to describe is a boy now aged fifteen years. He is the victim of a congenital extrophy of the bladder and an epispadiac penis with the pelvic cleft. He first came into hospital in July, 1895, for the deformity mentioned. There was a considerable protuberance of the posterior wall of the bladder, upon which the orifices of the ureters were distinctly visible. The exposed mucous membrane was very sensitive, and readily bled upon being touched either by the hand or by the clothes, and the thigh and legs were much excoriated by the constant dripping of urine from above. The patient's condition

was a very miserable one, and he was much emaciated on his admission to the hospital. Shortly after his reception he showed signs of having contracted scarlet fever, and was consequently removed to a hospital for infectious diseases. For some weeks after this his urine remained slightly albuminous.

On his readmission, after satisfying himself that both kidneys were in good working order, and the urine healthy, on January 17, 1896, Harrison removed the left kidney by lumbar incision. The patient recovered rapidly and completely from this preliminary operation. With the view of allowing ample time for the purpose of enabling the remaining kidney to grow and to provide for the entire urinary excretion, the patient went home for some months, occasionally returning for observation.

He was again admitted to the hospital in November, 1896. His legs and thighs were still much excoriated by the constant dripping from the single ureter, and the protruding mucous membrane of the posterior wall of the bladder remained scarlet and sensitive. Repeated examinations proving that the excretion of urine had been effectually carried on by the solitary kidney during the period of nearly eleven months which had now elapsed since the preliminary nephrectomy, the right ureter was transplanted on December 5, 1896, in the following manner:

A flexible bougie was passed up the solitary ureter so as to serve as a guide for finding the canal as it crossed the brim of the pelvis. A small incision was then made in the right loin on the same lines as if for a lumbar colotomy. By a little deep dissection the ureter was readily found and exposed. A carbolized silk ligature was placed upon it just below where it crosses the common iliac artery, and the tube was then cut across on the kidney side of the ligature and brought out into the loin wound. To the latter it was attached by one fine silk suture. There was very little bleeding and the whole proceeding occupied only a few minutes. The loin wound was partly closed by a suture at either end, but not so as to occlude the ureter. Before the patient left the operating-room urine was seen issuing from the transplanted ureter. A pad of absorbent material over the wound completed the dressing. It was noticed that, as the ureter was being transplanted, retching and attempts to vomit became continuous.

The patient also vomited at frequent inter-

vals for twenty-four hours after the operation. This immediately ceased at the expiration of this period, when in the course of his usual visit to the hospital Dr. Harrison removed the little suture which attached the divided end of the ureter to the loin wound, and which had evidently been keeping up some tension on the former. The now disused and protruding posterior wall of the bladder was covered with lint and vaseline, and the patient was placed on a light but nutritious diet.

For ten days after the operation the patient's condition was in all respects most satisfactory, the discharge of urine from the loin wound being, as far as he could judge, free and normal. Then followed a series of high temperatures, which continued from December 16 to January 29. On December 23 the temperature was 105.3° F., while on December 24 it fell as low as 97.4° F. These variations continued up to January 29, when the normal level was again maintained. No rigors were noticed, though there was sweating and occasional vomiting. At times the patient was evidently drowsy, but he seldom complained of feeling ill and was generally in good spirits and took his food with appetite. On January 7 he was allowed to get up on a couch, and since that date he has steadily improved in every respect.

Different causes were assigned for these variations in temperature. At first it was thought that they were due to influenza. Then it was suggested that some suppuration was going on. But the evidence was insufficient. The urine as collected from the ureter was clear and contained only a slight trace of pus, which was probably derived from the external wound. It seemed more likely that either the eliminating function of the kidney had been disturbed, or that these variable temperatures were due to changes directly connected with the absorption of the unused mucous membrane of the bladder, which was now rapidly going on. It is to be regretted that at this stage no qualitative examination of the urine was made, which might have thrown some light upon the point.

The boy was greatly benefited by the change in the mode of urination. He is able to maintain the erect position, and moves about comfortably, being quite free from excoriations about his thighs and legs. His general condition is also much improved. Nothing has yet been done to close in the posterior wall of the bladder, as it appears

to be slowly undergoing a process of cicatrization. It would, however, be quite easy to effect this by a plastic operation, now that the surface of the bladder wall is no longer in contact with the urine.

Harrison calls attention to the difference in the condition of the urine trickling from the ureters in these deformities, mixed with the abundant glairy excretion of mucus from the surface of the exposed membrane of the fissured bladder, as compared with the excretion that escapes from the artificial fistula in the loin, as in this case. In the former instance the excretion is irritating and offensive, with a strong tendency to form phosphatic calculi upon nuclei provided by the pubic hairs; while in the latter these characteristics are absent, and the presence of the patient ceases to be in these respects a cause of offense to others.

Though in this instance the treatment was undertaken solely with the object of ameliorating the patient's condition, it is possible that a similar proceeding, or some modification of it, might be utilized in connection with the treatment of other forms of urinary disease. He refers more particularly to the extirpation of the entire bladder for malignant as well as for advanced forms of suppurative diseases. Cases are occasionally met with in which, if it were possible to dispense with the bladder as a receptacle for the urine, its total removal might be safely and advantageously undertaken.

Over four months have now elapsed since completion of the operation.

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## Reviews.

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DISEASES OF THE EAR, NOSE AND THROAT AND EXTERNAL CAVITIES. By Seth Scott Bishop, M.D., LL.D.  
Philadelphia: The F. A. Davis Publishing Company. 1897.

In the preface of this book Dr. Bishop tells us he has written it because of frequent requests received from medical students that he should prepare such a work, and he has also designed it for the purpose of aiding the practitioner of medicine after his graduation. As may be imagined from its title, the book attempts to be quite exhaustive. The first part is devoted to a consideration of the anatomy of the parts which are to be treated, and then follows a somewhat lengthy consideration of the various forms of compressed air apparatus, vaporizers, and inhalers which are used commonly in the treatment of dis-

eases of the upper air passages. An examination of the text and the cuts shows that he quotes freely from contemporaneous writers, notably Sajous, Burnett, Tuttle, and Ingals.

As in most of the books issued by The F. A. Davis Publishing Company, numerous good illustrations will be found all through this volume, the most notable of which, perhaps, are the colored plates made by Burk & McFetridge of Philadelphia, which decorate so usefully the well known volume upon *Diseases of the Nose and Throat* by Dr. Charles E. Sajous.

The very large number of illustrations which are used for the elucidation of the text is shown by the fact that there are no less than 168 in this volume. As the title would indicate, the book begins with the consideration of *Diseases of the Ear*, then passes on to the consideration of *Diseases of the Nose*, and finally considers the subject of *Diseases of the Throat*. Some of the illustrations, as for example those on page 13, do not seem to us of any particular value, as they simply illustrate the arrangement of a physician's office in which he devotes himself to the treatment of the diseases with which this book deals.

Considering the extraordinary growth of the three specialties which are embodied in this volume, we can congratulate the author upon having produced a most successful condensed view of the treatment of affections of the head. In the article on the serum treatment of diphtheria Dr. Bishop does not speak as if he had used it, and a large part of the text concerning this subject is in quotation marks and taken from other writers.

**THE MENOPAUSE.** By Andrew F. Currier, B.A., M.D.  
New York: D. Appleton & Co., 1897.

This is a small octavo monograph on the subject of the climacteric, which extends over 281 pages and to which is added an index of authors and a general index of subjects.

As with all the books which are issued by this firm, it is a good specimen of book-making. When we come to the consideration of the volume itself we find that it deals in an interesting way with the changes which are supposed to take place in the human female who has passed middle life. The endeavor of the author has been to show the exact limitations of this physiological process, and he has also endeavored to prove that the development of the menopause does not render the woman peculiarly susceptible to certain diseases, especially cancer of the womb and

breast. With these objects in view he has embodied the results of a large amount of collateral reading and his own personal experience. Several of the chapters are provided with copious bibliographies, and a large amount of statistical information is given in regard to both human beings and the lower animals. The influence of great fertility upon the early development of the menopause, of prostitution, of gastro-intestinal disturbances, and of various other factors is also carefully considered. The book is exactly what it professes to be—a careful summary of our knowledge in regard to this important subject—and Dr. Currier from his very considerable experience is well qualified to produce such a monograph.

**THE LIVER OF DYSPEPTICS, AND PARTICULARLY THE CIRRHOSIS PRODUCED BY AUTOINTOXICATION OF GASTRO-INTESTINAL ORIGIN.** By Dr. Emile Boix.  
Authorized Translation by Paul Richard Brown, M.D., U. S. Army.

New York: G. P. Putnam's Sons, 1897.

It is evident from the title of this book that it deals with that interesting theme "autointoxication," a subject which has engaged the attention of French clinicians for several years and to such an extent as to lead them at times, we fear, to reach conclusions which only great enthusiasm can justify. Clever and enticing as the hypothesis of auto-intoxication may be, we often find in practical medicine that the theory scarcely holds good. When it comes to ascribing hepatic cirrhosis to this cause we think it is carrying the matter a little beyond the bounds of likelihood.

The first chapter deals with the general consideration of the subject, and the second with the poisons of the alimentary canal, while the third discusses the conditions which favor the production of these poisons. The second part of the book is devoted to the liver of dyspeptics, the liver and its poisons, and then in the succeeding chapters the author devotes himself to the proving of his thesis by discussing what he calls dyspeptic cirrhosis and its pathological anatomy. The last part of the book deals with a summary of the experimental work which has been done in the line of producing cirrhosis, then with the author's own studies, and ends with a recapitulation of the subject. The object of the author all through his essay is to prove the existence of a cirrhotic change in the liver peculiar to what he calls dyspepsia. He also believes that butyric acid and lactic, valerianic, and especially acetic acid, are



formed in the intestine, and that these acids have a peculiar power of acting as sclerogenic agents on the hepatic cells. The therapeutic deduction from the whole research is found in a single line, the last in the book. It is that calomel is the best remedy, in the dose of one centigramme.

**SYSTEM OF DISEASES OF THE EYE.** By American, British, Dutch, French, German, and Spanish Authors. Edited by William F. Norris, A.M., M.D., and Charles A. Oliver, A.M., M.D. Volume II. Copiously illustrated.

Philadelphia: J. B. Lippincott Co., 1897.

We have already spoken in terms of high praise of the first volume of this System, which appeared during the past winter. The present volume contains articles written by fifteen contributors, one assistant contributor, and three translators, and deals with the important subjects of the examination of the eye, school hygiene, statistics of blindness, and antisepsis.

The opening article is on the Methods of Determining the Acuity of Vision, by Herman Snellen of Utrecht, Holland, his article being translated by the well known Scotch ophthalmologist, Mr. Berry. It is hardly necessary to point out that an article on this important subject by one who has taken so much interest in it is of practical utility and worthy of the System to which it is contributed. The same author also contributes the succeeding chapter on Mydriatics and Myotics, and we feel a little disappointed in its brevity, for we think that this important subject might have been extended beyond the short space of fifteen or sixteen pages. It does not seem to us that the various studies which have been made as to the manner in which mydriatics produce their effects have received sufficient attention in this paper.

The third chapter is upon Lateral Illumination and the magnifying instruments employed in combination with it, and is written by Laqueur of Strasburg, the translation being made by Dr. Friedenwald of Baltimore. This chapter extends from page 47 to page 61, and is followed by one upon the Ophthalmoscope and Art of Ophthalmoscopy, by Dr. George M. Gould of Philadelphia, which extends over twenty-four pages. Here, again, we are surprised at the brevity of the discussion of such an important subject in so large a System. Very properly the chapter upon Skiascopy (the Shadow-Test, Retinoscopy) and its practical application has been given to Dr. Edward Jackson of Philadelphia, whose work upon this subject is well known to the profes-

sion; while Adolph Javal, Jr., discusses Ophthalmometry and its Clinical Applications very appropriately.

Dennett of New York contributes a chapter upon Prisms and Prismometry, and Stevens of the same city, so well known as an expert on the subject of the balance of the ocular muscles, writes upon this topic.

The Detection of Color Blindness is discussed by Dr. William Thomson, assisted by Dr. Carl Weiland.

The chapter upon Blindness: its Frequency, Cause, and Prevention, by Dr. I. Minis Hays, of Philadelphia, is one which is strongly fortified by valuable statistics.

From what has been said so far it must be evident to our readers that the editors of this System have been peculiarly fortunate in obtaining writers of high authority upon the various subjects. Almost every contributor is recognized as a law-giver in the study of the subject of which he writes, and those who have edited a System know how difficult it is to obtain the very best authors for special subjects.

The volume ends with a very complete index and list of contributors to the System, and a schedule of the various articles which will make up the complete system. Both editors and publishers deserve great credit for placing before the profession a most valuable encyclopedia, and we trust that their efforts will be fully appreciated.

**SYSTEM OF SURGERY.** Edited by Frederic S. Dennis, M.D., assisted by John S. Billings, M.D. Volume III. Illustrated.

Philadelphia: Lea Brothers & Company.

The writer of this notice has but to repeat the good words given the two volumes of this System previously reviewed in the THERAPEUTIC GAZETTE. The following subjects are discussed: Surgery of the Larynx, Tongue, Jaws, Teeth, Salivary Glands, Neck and Chest; Diseases and Surgery of the Eye and Ear; Surgical Diseases of the Skin; Surgery of the Genito-Urinary System; and Syphilis.

The name of its editor, Frederic S. Dennis, and of such contributors as George E. de Schweinitz, J. William White, Robert W. Taylor, William A. Hardaway, Louis McLane Tiffany, and H. H. Mudd, will serve as a hall-mark to the busy practitioner and careful student, that in selecting this work he is obtaining the latest information on the subjects discussed and many practical methods embodied in the most concise language.

The book contains 919 pages, including an adequate index. The publishers are to be

congratulated on the book-making part of the work; the type is clear and the text elucidated with many illustrations and a number of colored plates.

We bespeak for this volume a continuation of the success attending the appearance of its predecessors. \*

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.

The past month has been devoted wholly and entirely in one or other form to Jubilee celebrations. The medical societies have all closed their doors for the summer, and the current medical journals are sufficient evidence of the general stagnation of matters medical. Following the example of the *Practitioner*, to which we alluded in our last letter, most of them have blossomed out into a Jubilee number. The occasion is most certainly a favorable one for retrospection, as everything is pervaded with a supersaturated holiday atmosphere, and nothing is a-doing. Even about the hospitals there is a sense of listlessness; many beds are empty, and the out-patient departments are sparsely attended, and all because for the moment the public has something that interests it more than its own ailments. With only a month remaining until the hospitals begin their annual closing for cleaning and repairs, we hardly look forward to a great awakening until the commencement of the winter session. Only the children's hospitals are busy, as the extent and intensity of any great national rejoicing may usually be expressed in terms of infantile diarrhea. London is now slowly emerging from its casing of wood, and the din of hammer and saw and axe is silent; there are still only too obvious signs of an overflow population, but with the return of visitors and the approaching end of the London season, the streets are daily becoming more passable. Only a week since "All board and no lodging" was a terse but truthful description of existing conditions, with every house along the route hidden in hoarding and tenanted two deep from cellar to garret.

The distribution of medical honors will be generally approved by the profession both by reason of the fitness of the recipients and the numerical limitation. None is more \*thoroughly deserved and none will be more

generally welcomed than the knighthood bestowed on Dr. W. R. Gowers, who has won so high a reputation in this country and on the Continent for his investigations of diseases of the nervous system; over and above this there is probably not in London a more fascinating teacher, both at the bedside and on paper. The medical honors are fitting recognition of the enormous advances that have been made in all departments of the healing art during her Majesty's reign. Her Majesty looked wonderfully well, and bore the heat and toil of the day without any undue fatigue, and that this should be possible after seventy-eight summers, if not a tribute to the skill of modern medicine, is valuable testimony to the benefits of fresh air, in which her Majesty has so much faith—an example that might be followed to advantage by more of her subjects. In spite of the enormous crowds that witnessed the procession on Jubilee Day, the casualty list was exceedingly trivial, and but little work was forthcoming for the extensive ambulance service provided at stations all along the six miles of route. Besides the ambulatory contingent in the crowd, armed with stretchers and sal volatile, temporary hospitals afforded possible accommodation for some hundreds of patients. Happily these were not requisitioned at all. Such cases as required attention were mainly attacks of faintness, and these in the majority of instances could not be attributed to the crowd so much as to the self-inflicted exhaustion which inevitably results from commencing a holiday in summer at sunrise, more especially after a night made hideous by the din of preparations for the morrow. As a fact the streets were never at any period of the ceremony densely crowded, as with the persistent fall in prices the large majority of sightseers had provided themselves with seats in the course of the last few days. Syndicates and dealers in seats will hardly join in the general rejoicing, as in this undertaking almost as much money was lost as gained. And no one has a word of pity for them, as this state of affairs was entirely brought about by their rapacity in the early days of seat selling. Very many who would gladly have taken a seat at a reasonable figure were unable to do so at the figure demanded at first, and made their plans accordingly to spend the day in peace and quiet away from the metropolis. The knowing ones held their purse strings until the "slump" set in, and during the procession people were seated side by side

who had paid as differently as fifteen guineas and half-a-guinea for their seats, and only because the latter had waited to the last moment. The absence of a single casualty in connection with newly-erected stands and house accommodation testifies to the thoroughness with which the official inspection was carried out. This is amazing to anyone who saw the rickety floors on which hundreds of sightseers were accommodated on seats raised from the anterior inferior to the posterior superior angles of rooms, so that the uppermost ousted the flies from their privileged habitat on the ceilings. Zaccheus is still with us, and falls from trees were accountable for one or two serious accidents, which otherwise were chiefly conspicuous by their absence. Enquiry at the hospitals along the route showed that very few casualties, trivial or otherwise, were treated at these institutions. The weather was certainly conducive to this end, as the morning opened cool and cloudy, and it was only just as her Majesty left Buckingham Palace that the sun shone out brilliantly. Another factor was the provision of abundant water all along the route by standpipes fitted with drinking-cups. Still it would be absurd to suppose that the British public celebrated their holiday exclusively on that innocuous beverage—even in this age of enlightenment of the masses there still lurks an ill-founded prejudice to its adoption both for internal and external application. However, there was a quite remarkable absence of drunkenness both during the day and at night, and nothing in Jubilee Day can be a more sincere subject of rejoicing than the gradual and evident growth of temperance among the working classes. It represents the clearing of a cloud that has overhung the domestic happiness of the nation, and the casting out of a canker that has blighted the nation's supreme prosperity. There are rumors of legislation dealing with habitual drunkards, but we fear that it is not in the near future. While our rulers are largely publicans, we cannot look for severe disciplinary treatment for bibulous sinners.

The Prince of Wales Hospital Fund has hung fire: every one's purse has been heavily taxed in one or other way for the Jubilee celebrations. It was anticipated that the total would be swelled by one or more large individual benefactions; but such of these as have been forthcoming have been devoted to other objects. Sir Blundell Maple has given the magnificent sum of £120,000 for the re-

building of University College Hospital in the most modern style of hospital construction, while Mr. Lipton's £25,000 has already found its way in the form of beef and plum-pudding into the stomachs of the Princess of Wales' poor. Then again the charitable public would have liked some clearer assurance of the ways and means of distributing the sum collected. Every one is agreed that such matters as these should be the duty of a Central Hospital Board, but there is great diversity of feeling as to the constitution of that Board. The sum already collected will provide an annual income of something like twenty-five thousand pounds a year, instead of the hundred or hundred and fifty that was hoped for. We do not now look for any very substantial addition to this sum, although no doubt a considerable sum will be derived from the sale of the Prince of Wales Hospital Stamp, and of the shilling illustrated Jubilee programme that was sold all along the route on the day of the procession. We cannot at present form any estimate of the extent to which this special appeal will interfere with the regular income of the hospitals. Hospital secretaries have already realized that in this respect the original intention of the fund, to appeal to a class other than the regular subscribers, has not been maintained.

We have little to bring to your notice in current medical literature: Sir Richard Quain read an interesting paper to the Royal Society on the "Mechanism by which the First Sound of the Heart is Produced." The author ruthlessly upsets the theories on which the present generation was nurtured. Neither the closure of the auriculo-ventricular valves nor the muscular contraction of the ventricular walls is a factor in the production of the first sound. The tension of the auriculo-ventricular valves is put out of court by the fact that the first sound is distinctly present in reptiles, in which the auriculo-ventricular valves exist only in a rudimentary form. Thus in the python, which was employed to demonstrate the fact, the valves are merely muscular flaps, destitute of *musculi papillares* and *chordæ tendineæ*, and of any mechanism for producing valvular tension. Clinically, too, this is consonant with the fact that in the presence of a loud systolic murmur of mitral regurgitation at the apex, we frequently hear a normal first sound at the base of the heart. Again the muscular contraction of the walls of the heart during systole cannot be the source of the first sound of the heart. In the first place it is totally different in charac-

ter from the gentle purring sound produced by the contraction of large muscles in other parts of the body. On this point the experimental results of Quain stand in absolute contradiction to those obtained by Ludwig, Krehl, and Kasem-Beck. He finds that although the heart continues to beat, the first sound is absent whenever the circulation in the heart is stopped by clamping the large veins that bring blood into the heart; this also is the case with the turtle's heart after removal from the body. The author turns to his own use another class of experiments which have been employed to show that the contraction of the muscle is a source of the sound. Hürthle and Einthosen have shown by graphic methods that the first sound begins with the very beginning of the systole, before the ventricle has got power to open the valves; and this brings us to the constructive portion of Sir Richard Quain's communication. In this he endeavors to show that the first sound of the heart is produced by the impact of the blood driven by the action of the muscular walls of the ventricles against the block produced by the columns of blood in the pulmonary artery and aorta, which press upon the semilunar valves. "Sound is a phenomenon resulting from resisted motion." Within the left ventricle the motion of the blood stream is in three spiral columns, which are concentrated into one similar stream before reaching the orifice of the aorta: by this "rifle" mechanism a maximum precision and velocity is imparted to the moving columns of blood. The resistance to this current of blood from the ventricle is represented by the weight of the column of blood resting on the aortic valves. Normally the ratio of the driving power to the resistance is as four to three. Sir Richard Quain submits that the first sound of the heart is the product of these two factors, and that it is produced at the aortic valves, although owing to the anatomical relationships of the heart the sound is best heard at the apex. In conclusion he describes a simple experimental mechanism by which sounds resembling the first (and second) sound of the heart can be produced artificially in accordance with this explanatory theory.

At the Royal Medical and Chirurgical Society Dr. Dickinson read a paper on "Musical Mitral Murmurs in Connection with Aortic Stenosis." The murmur might be due either to actual disease or to relative incompetence of the mitral valve, but in all probability the peculiar squeaking or even musical char-

acter of the murmur was due to the force under which the mitral regurgitation was produced, perhaps reinforced by the narrowness of the orifice of escape.

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### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

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It is not necessary to leave France in order to see strange customs, though usually it is only by chance that one learns of the existence of the curiosities in the social life of the various regions of this country.

Recently a tourist discovered not far from Paris (70 kilometers, less than 50 miles away) some individuals whose mode of life was so singular that it was thought worth while not only to give a description of them in the *Revue de l'Ecole d'Anthropologie*, but even to make an excursion to their dwelling-place in order to see them.

In the valley of the river Eure, in the department of the same name, and to the west of Paris, there are to be found, about one kilometer from the village of Ezy, a series of caverns dug in a hillside overlooking the river. These caverns are in three rows, one above the other, and give out onto platforms of earth built in front of them. They probably date back to the middle ages. Nearby are to be seen the ruins of a few houses.

About eighty persons, more or less, inhabit the caves. They are men, women, and children. They live in the greatest degradation, by begging or petty thieving, and carry on no occupation of any kind. Their clothing is filthy, and in many cases hardly merits that name. Children almost grown up go nearly naked.

Absolutely no furniture is to be seen in the caves. For beds dried leaves are collected and kept in a framework of wood; in some cases even the framework of wood is absent. Old sardine boxes and tins of various kinds, picked up in the roads, serve for kitchen utensils. A well at the foot of the slope supplies them with water.

Among them are several families with from four to five children each. These families have been formed in the place itself, and in some cases between individuals who themselves had grown up in the caverns. It is needless to say that any formality as to marriage, as well as taxes, schooling for the children, etc., are unknown to them. It may be added that so low is the condition of these people that the ground before the caves

which they occupy is covered with their excrement.

A well known philanthropist, Mr. Frédéric Passy, who for some time resided in the neighborhood, endeavored to ameliorate their condition, but with little success.

A case which interested the Academy of Medicine not long ago was the following: A patient died of hydrophobia, and the following day the autopsy-room porter, while removing the pancreas, pricked his finger. Two days later he began the accustomed treatment at the Pasteur Institute, which was continued for eight days, when he felt tired and uneasy, with some lumbar pain. On the following day the temperature was 38° C. Hyperesthesia and a sensation of heaviness in the legs were noted. Later on paresis and formication in the legs, with girdle-pains, developed, and on the third day after the onset of the symptoms urinary disturbances were manifest. Complete paraplegia both as to movement and sensation were present on the fourth day; on the fifth day giddiness and vomiting; on the sixth day the arms were affected and the head could with difficulty be moved. The heart-beats were 140 in number, and breathing was difficult. Notwithstanding these symptoms, it was thought advisable to carry out the usual antirabic treatment.

On the seventh day some improvement in the symptoms was noted; the arms were better, and the legs were no longer without sensation. Improvement continued, and on the twenty-fifth day the patient was able to leave for the country.

At first it had been thought that the patient was suffering from the paralytic form of rabies. This idea, however, was finally decided to be inexact, and the physician who treated the patient considered the case to be one of acute ascending myelitis of toxic origin, due to the injections of spinal-cord preparations acting upon an individual who by his occupation was necessarily chronically infected, and consequently apt to be easily affected by the toxins found in the emulsions used.

In the discussion that followed Dr. Roux stated that he could not agree with the above conclusions. If the symptoms noted had been due to toxins contained in the spinal cord used for the injections, the continuance of these latter would have aggravated the case. This, however, did not occur.

Two similar cases had been observed, according to Dr. Roux, at the Pasteur Institute,

both of which had rapidly recovered, and these two cases were the only ones known out of 19,000 cases treated. Dr. Roux thought that if 19,000 persons having either been vaccinated or having taken sea-baths were examined, it would be more than likely that one or two such cases might be found among them. A greater argument was that almost any amount of the emulsion used during the first few days, when the symptoms came on, could be injected into animals without giving rise to any disturbance.

Dr. Laveran had seen a somewhat similar case in a military hospital, ending in recovery, and had come to the conclusion that it was due to an abortive form of rabies, and not to the effect of the injection.

Dr. Brouardel said he considered the case was very likely one of infectious myelitis, but not due to the injections made during the treatment. Such attacks of myelitis were not in reality so very uncommon. It might indeed be a case of paralytic rabies, cured in fact by the continuance of the treatment begun. This would then be a point in favor of the antirabic treatment.

In 1895 M. Dastre, of Paris, while studying the phenomena of coagulation in blood, discovered that the injection of gelatin into the veins of a dog accelerated the process.

Dr. Lancereaux presented recently to the Academy of Medicine a report of a case in which he had endeavored to treat an internal aneurism by the above method. The patient was a male adult, aged forty-six years. For two years he had been suffering from an aneurism of the first portion of the arch of the aorta, which seemed to be in great part due to the efforts required in his occupation of tending a certain piece of machinery, as the first symptoms appeared six months after the patient had taken up the task. These symptoms consisted in neuralgic pains in the upper intercostal nerves on the right, extending into the inner side of the arm. Six months later attacks of angina pectoris appeared, and finally a small tumor appeared on the thorax and gradually increased.

When Dr. Lancereaux first saw the patient the upper and anterior portion of the thorax presented a tumor of the size of a child's head, measuring 12 centimeters vertically and 12½ centimeters transversely. The second, third, and fourth cartilages, the greater part of the sternum, and portions of the second, third, and fourth ribs had disappeared.

The aneurism increased gradually in size, and here and there on its surface were to be

seen dark-colored smaller swellings where the blood was directly brought into contact with the skin.

Inasmuch as the case appeared to be so dangerous, it was decided to inject into the left buttock fifty cubic centimeters of a sterilized one-per-cent. solution of gelatin, at the temperature of 37° C. This caused the temperature of the patient to go up to 38° C., but on the following day the general condition was again normal, and the tumor had become harder. During the next few days the tumor diminished somewhat in size, and the pain which had been felt by the patient completely disappeared. Recurrence of the pains and of the other symptoms were followed by the same results as at first on an injection of 150 cubic centimeters being made. Twelve other injections were made, from two to five days apart. The final result was that the tumor had considerably diminished in size, was firm to the touch, and though pulsation could still be felt in it, it was no longer expansive in character, but seemed rather to be due to the impulse given by the aorta beneath. The patient felt so well that he insisted on leaving the hospital.

A young poet who for some time had been accustomed to use both hashish and morphine, recently committed suicide by means of an overdose of the latter drug. By his will he left the greater part of his fortune, amounting to one hundred and twenty thousand dollars, to his mistress, and one thousand dollars to a member of the legal profession. If, however, his will were attacked by any members of his family on account of supposed undue influence, the entire amount was to go to the latter legatee. As it happened the brother-in-law of the poet endeavored to have the will annulled, not on account of undue influence, but because of the well known abuse of morphine which the deceased had suffered from. The court decided that inasmuch as the abuse of morphine could not be considered as in any way doing away with the culpability of the individual in a criminal case, it could not be regarded as diminishing the responsibility of the individual in a civil cause.

This decision is opposed to the decision given some years ago in a case tried in Hartford, Connecticut, in which a will was annulled on account of the abuse of morphine and alcohol.

France is one of the few countries in which the positions of physicians and surgeons to the hospitals and of assistant professors at the

faculties of medicine are filled by competitive examination. Of late years complaints have arisen of favoritism having been shown in the choice made. At the examination for hospital physician which took place this spring, one of the judges, Dr. Variot, published an article in a medical paper, in which he stated that he could see no reason why any such examination should be held, as out of seventy-five candidates the three whom public opinion, previous to the examination, had designated as being especially favored by members of the jury were nominated. This article caused considerable commotion, so much so that one of the medical societies of Paris, which was formed by the reunion of the hospital physicians, held a secret session for the purpose of judging Dr. Variot's conduct in publishing the article.

A still greater excitement has been caused by the resignation of a member of another jury more recently formed, on account, as he said, of the jury having given the highest possible mark to a candidate who had made a mistake in diagnosis, but who was especially protected by other members of the jury.

One of the most illustrious men of French medicine, Duchenne, has but just now had a monument erected to his memory at the Salpêtrière Hospital. The monument consists in a tablet, the upper part of which forms a medallion in which is placed a profile view of the head of Duchenne. Below this medallion is a bas-relief representing Duchenne testing by means of electricity the muscular system of a patient. Representatives of the Faculty of Medicine of Paris and of the various learned societies, as well as of the Government, were present at the inauguration.

Duchenne is so well known that it is hardly worth while to mention his works on "The Application of Localized Electricity to Physiology," etc., and "The Mechanism of Human Physiology." It is chiefly in connection with two affections—locomotor ataxia and progressive muscular atrophy—that his name is connected. Duchenne, who was always called of Boulogne on account of having practised in that city previous to his arrival in Paris, was never connected in any way with the Faculty of Medicine; in fact, during his life he was looked upon by most of those with whom he came into contact in the hospitals as an intruder, if not a quack. Trousseau, it is true, recognized the value of his discoveries.

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## Original Communications.

### THE RAPIDITY OF ABSORPTION AND ELIMINATION OF SOME COMMONLY EMPLOYED DRUGS AS A GUIDE TO THEIR ADMINISTRATION.

By H. A. HARE, M.D.,

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of Philadelphia.

The knowledge of the effects of drugs upon the human or animal organism is a *sine qua non* of successful therapeutics of a rational

type, and its importance is so great that any argument in support of a closer study of the action of remedies is useless. Too often, however, we study the effect of the drug upon the different organs upon which we wish it to exercise a particular influence and ignore its influence upon the organs of absorption and elimination, although the speed and manner of absorption and elimination should govern our dosage, as to size and frequency. The direct influence of the remedy as it passes through the absorbing organs and those of elimination may be great.

A study of modern medical literature re-

veals a distressing lack of attention to these points, and we find careful practitioners ordering drugs which are slowly eliminated very frequently in twenty-four hours, and drugs which are rapidly eliminated very seldom in twenty-four hours; with the result in the latter instance of practising what an eminent therapist has called "kangaroo therapeutics," viz., a great effect of short duration at long intervals. Thus to give dilute hydrocyanic acid, three times a day for the relief of cough will produce a sedative influence of a powerful character, which will last at the most but a few minutes and leave the patient unmedicated for several hours; and the use of ammonia as a stimulant in a similar manner is equally futile. On the other hand the frequent administration of digitalis or the bromides is unnecessary, for these drugs are so slowly absorbed that the system receives a gradual dose, so to speak, and they are so slowly eliminated that if the doses are frequent the drugs simply accumulate in the body and produce an excessive effect.

All drugs cannot be arbitrarily divided into those which are slowly and those which are rapidly eliminated, but some drugs do lend themselves to such a classification, and some of those which are slow of absorption are slow of elimination. It is because drugs which are slowly eliminated are frequently given too often in twenty-four hours that the so-called "untoward effects" of many of them are developed; and in reality a large number of drugs produce a cumulative effect, although this term is usually applied to the effect of the excessive use of digitalis. The difference in the effect of digitalis when it accumulates is that some change in the position of the patient may bring on the symptoms suddenly, and therefore a greater impression is made on the mind of the physician and perhaps on the body of the patient.

The reliable information that we have as to the absorption and elimination of drugs is by no means as complete as is desirable. No part of pharmacological study is more neglected. In many instances no studies as to the elimination of important remedies have been made. In other cases the drug is so completely destroyed in the body as to prevent any estimation of its presence in the urine, as for example in the drug digitalis; and again in some instances the methods of testing for the substance in the eliminative secretion cannot be relied upon. I trust at some future time to present original studies

on this point, but at present I shall only gather together for your consideration the facts already scattered through some of the literature.

Of the mineral drugs which are rapidly absorbed and eliminated we find the following:

The iodide of potassium is absorbed and eliminated so rapidly when taken by the empty stomach, even in so small a dose as three grains, that it appears in the saliva and urine in from ten to twenty-five minutes, usually in about fifteen minutes. It does not tend to accumulate in the system to any great extent. Its rapidity of total elimination is apparently not so great as its speed of total absorption, for though it soon disappears from the stomach it appears in the saliva for about thirty-six hours afterwards. These results have been reached by a number of observers, but the figures given here are my own. Soullier asserts that the iodine appears in the urine and saliva in so short a time as five minutes, and this statement is endorsed by Desprez (*De l'Elimination de l'Iodine de Potassium par les Urine*, 1884). Doux states that thirteen minutes usually elapses before elimination begins.

Not only is the drug speedily found in the saliva, but the largest part of the dose taken escapes within twenty-four hours. About eighty per cent. escapes in this brief period, but on the other hand the drug remains in small amounts much longer than this. Ehlers (*Annals de Dermatolog. et Syphilog.*, 1890) states that this residual quantity is slowly eliminated over a period of five days. John Marshall found that 265 grains a day could be recovered from the urine of a patient taking 360 grains a day. There are several reasons why this result is reached. First, the amount eliminated by the urine does not represent that eliminated by the saliva, and probably there is also an elimination by the bowel, so that an amount considerably over that found by Marshall really escapes from the body if the patient defecates or expectorates. On the other hand, one of the reasons why a certain portion remains uneliminated is that being eliminated in the saliva it is swallowed and reabsorbed. Then, too, it is probable that some of the iodine unites with the albumen of the tissues, forming slowly soluble albuminoid compounds of iodine, and so this quantity is delayed in the body.

It is evident, therefore, that in the use of iodide of potassium we should give it freely and frequently at first until the residual



amount has reached its limit, when smaller doses may be given and given less frequently for the purpose of maintaining the iodine influence. That is to say, the drug should be given up to the point of tolerance, whatever that may be, and then a smaller dose will be sufficient to maintain its influence by replacing the albuminoid compounds as they are slowly eliminated. On the other hand, if the iodide is being given for the purpose of eliminating some poison, as lead for example, here the dose cannot be greatly decreased because in addition to the ordinary quantity eliminated a proportion is passed out as a double soluble iodide of lead. This theoretical objection seems to find support in the fact that after the syphilographer reaches the full effect of the drug he often cuts the dose down to what he calls the "tonic dose," and so maintains the constant alterative effect without disordering the functions of the body. If he does not do this the drug accumulates and causes chronic iodine cachexia, a state which it is important to avoid in grave disease like syphilis, which depends for its relief so largely on the development of great vitality in the patient.

It is interesting to note in this connection that when we give iodide of potassium the iodine unites with the sodium in the blood and is so eliminated, whereas the potassium itself is more slowly eliminated; and as it has a depressant effect on the vital functions it cannot be ignored. This is illustrated in regard to another iodine compound by an experiment of Issersohn, who gave iodide of lithium hypodermically and recovered all the iodine in the first twenty-four hours, but not all the lithium for forty hours. The facts in regard to the iodide of sodium are such as to strongly commend it as a substitute in medicine for the potassium salt. I have already shown in one paper, as have many others before me, that potassium is a powerful depressant, while sodium is not. Again, when iodide of potassium is taken internally it is decomposed and iodide of sodium is found. The sodium salt, therefore, possesses great advantages, as it contains practically as much iodine as the potassium salt.

Iodine itself is properly used less than the iodides because it is irritant and more slowly absorbed, and seems to produce more irritation in its elimination than iodine derived from the salts named.

Bromide of potassium has been studied very thoroughly as to its absorption and elimination. It is absorbed rapidly and exceed-

ingly slowly eliminated. Thus Rabuteau asserts that five minutes after it is taken it begins to be eliminated, and in ten minutes its presence is most manifest. Amory found one-half of the drug eliminated in twenty-four hours and one-third in the next twenty-four; but the important fact for us to remember, from a therapeutic point of view, is that the balance of this drug is perhaps more slowly eliminated than any of the common remedies, for Bill (*American Journal of the Medical Sciences*, July, 1868) found it in the urine two weeks after the drug had been stopped, and Rabuteau found it one month after. The same rule which was stated as governing the use of the iodides holds here, namely, that after the drug is once manifesting its full effect smaller doses will maintain its effects, and this is the method in which those neurologists who use it most generally employ it, namely, full doses for one week and then small doses only large enough to preserve the effects. Probably few general practitioners follow this custom.

It is manifest, therefore, from what I have said that the administration of either iodides or bromides in frequent small doses possesses no advantages and is apt to disorder the digestion and overload the organism with the drug. They should be given twice or thrice a day in full dose rather than frequently in small doses.

The rapidity of absorption and elimination of mercury depends to a very great extent on the variety of it which is given. The drug in some forms is so soluble, in others so insoluble, that very great delay in its elimination must often ensue because it is slowly absorbed. It will be futile in this brief paper to discuss the form in which mercury is absorbed. It is usually taught in France that the theory of Miahl is correct; this is that the mercurial preparations are transformed in the stomach and intestine into the bichloride, which in turn unites with the sodium chloride in the blood and circulates as a double chloride of mercury and sodium. In Germany it is taught that it forms an albuminate of mercury and so circulates (Henoch's theory), or that it forms a chloro-albuminate (Voit's theory). All theories as to the form of its absorption are open to grave criticism. As to the elimination of mercury, it is known to escape by every avenue of exit from the body—the urine, feces, sweat, tears, milk, and saliva. After a single dose the drug begins to be eliminated in about two hours according to Byasson, and is entirely gotten rid of

in twenty-four hours. If, however, the doses are persisted in it gradually accumulates in the body and is so slowly eliminated as to remain for almost indefinite periods of time, and is found deposited in all the organs. In other words, the doses of mercury ordinarily given are always large enough to produce cumulative effects. Thus while Balzer and Klumpke agree with Byasson as to the rapidity of elimination of a single dose, they find from an experimental study that the amount of mercury which can be eliminated by the kidneys for many weeks when the body is saturated with the drug is only one-sixteenth of a grain a day. It is evident therefore that after a full mercurial effect is produced it is well to decrease, as do most syphilographers, the dose of mercury and only give enough to maintain the effect. It is also evident that their plan of using iodide of potassium every now and again to aid in the elimination of the residual mercury is advisable.

Antipyrin is rapidly absorbed from the stomach in a space of from fifteen minutes to half an hour, and begins to appear in the urine at this time; but Reihlen asserts that its elimination continues for from thirty-three to fifty-six hours after the last dose. It therefore should not be given in too frequent doses. In regard to acetanilid we have the assertion of Kumagawa that it is absorbed in half an hour and eliminated completely in twenty-four hours, so that it is not as prolonged in its effects as is antipyrin.

Atropine and belladonna are, on the other hand, absorbed with extraordinary rapidity and equally rapidly eliminated in the urine. Harley asserts that elimination is complete in two hours. This drug may therefore be wisely given frequently. Aconite is also rapidly absorbed and destroyed by oxidation, so that its effects do not last for any length of time.

Arsenious acid is absorbed fairly rapidly, but eliminated very slowly indeed, chiefly by the kidneys and the sweat. It begins only after the lapse of fourteen hours and continues for sixty hours, and it is thought by some that the development of an arsenical rash is an indication that elimination through the skin is beginning. This drug ought therefore to be given at long intervals rather than in many doses each day.

I have called attention to these facts in regard to the absorption and elimination of drugs because I do not think that enough attention is given to this important subject when drugs are given.

## *TWO HUNDRED CASES OF SPEECH DEFECTS AT THE PHILADELPHIA POLYCLINIC HOSPITAL.\**

BY G. HUDSON MAKUEN, M.D.,

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It has long been a source of surprise to me that the function of speech, which plays such an important part in the history of our civilization and in the physical and mental development of man, should receive so little attention at the hands of the medical profession. In comparison with the advancement which we have made in our studies of the other leading faculties of the human organism, we are many years behind the times with the faculty of speech.

We no longer look to the enterprising optician to correct our errors of refraction, but we still depend upon his twin brother—the quack stutter-doctor with his tricks and secret mechanical contrivances—to correct our defects of speech. This is a fact greatly to our discredit, for there are no sufferers who require the careful, conscientious treatment of the skilled physician more than those who think with a stammering brain and speak with a stammering tongue. It is with this fact in view, and with the hope of placing the whole subject on a more scientifically workable basis, that I have undertaken its study.

In the somewhat less than a half year that my clinic has been in operation, nearly two hundred cases have presented themselves for treatment. Of these two hundred cases, one hundred and forty were stammerers, and the remaining sixty represented all the other varieties of vocal and speech defects of which I have any knowledge, and one or two varieties which have never been reported.

You will readily see that to do justice to my subject would require more time than I have at my disposal, and so I have concluded to read only that part of my paper which refers to stammering, and to draw some conclusions from my one hundred and forty cases with reference to the nature of the affection, its etiology, and its treatment.

Ninety-five per cent. of my patients were males, and they ranged all the way from six to fifty-three years of age. Thirty-two per cent. are reported to have stammered from

\* Paper read before the Medical Society of the State of Pennsylvania, May 19, 1897.

the very inception of their speech development; fifty-two per cent. began between the ages of three and ten years; two began at eleven years, one at twelve, one at fourteen, and two at fifteen years of age.

About seventeen per cent. claimed some improvement with increasing years, while twenty-five per cent. were getting worse; thirty per cent. had associated with persons similarly afflicted; and thirty-two per cent. had relatives who stammered.

Seventeen per cent. ascribed the origin of their trouble to the voluntary imitation of others; fifteen per cent. to having received a fright; eight per cent. to an injury; and six per cent. to having been ill-used at home.

Whooping-cough, measles, scarlet fever, diphtheria, and smallpox have all figured as supposedly causative factors, although these diseases have not been especially prevalent among them. Consumption had made inroads into the families of twenty-five per cent. of my cases; and this is an interesting fact when we consider that stammering is always accompanied by marked irregularities in the respiratory function.

There was a family history of insanity in three of my cases; and no imbecility or idiocy. The usual reply to my question, "Bright or dull?" was "Very bright;" but this was true only in certain lines. Some of the faculties appear abnormally acute, while others are below the average. This is especially true of those who have stammered for a long time. Not only is there an impairment of the mind, but there is a physical impairment as well; and few of them claim to be in good general health. "Weak and nervous" is a favorite expression with them; and many attribute their whole trouble to this condition.

Of special interest to me has been the study of the objective conditions or appearances of these patients. They present a peculiar physiognomy which is almost pathognomonic. Their dejected facial expression is probably due largely to the great mental depression which many of them experience on account of their defect; but the general contour of the head and face is a part of their natural inheritance; and it is certainly suggestive of the degenerate type.

The thoracic development is fairly good in most of these cases, but there is a total lack of voluntary respiratory control. It is by no means uncommon to find one with a well developed chest who is unable to make more than an inch or an inch and a half difference

between the girth of forced expiration and that of forced inspiration.

Now as to the condition of the organs of speech as seen by direct inspection and by means of the rhinoscope and the laryngoscope: First, the tongue. I have had only one case of tongue-tie where it was necessary to clip the frænum; but there were four cases in which the anterior fibers of the genio-hyoglossus muscle were too short, and in which division of these fibers seemed to be indicated in order to give a free motion to the tip of the tongue. My method of doing this operation will be found fully described and illustrated in the *Journal of International Clinics*, vol. i, 7th series, April, 1897. In several cases the tongue was found to be hypertrophied; there was too much of it, and it seemed to be in its own way. I have not thought it necessary to attempt an operation to remedy this condition, but as early as 1841 Dieffenbach removed a wedge-shaped piece by means of a horizontal section at the base of the tongue for the relief of stammering; and the operation might be justifiable where the tongue is very long and thick.

The uvula has presented some interesting anomalies. There were eight bifid uvulas; and there were many cases in which it seemed to turn at right angles upon itself and point horizontally in various directions. In one case the uvula was divided throughout its entire length, and there was a large congenital perforation in the anterior palatal fold. Another case had a long epiglottis which appeared above the base of the tongue, and a portion of which I removed with the electric knife.

Hypertrophied faucial and pharyngeal tonsils and intranasal lesions have been frequently met with, and a general catarrhal condition of the nose and throat is the rule. That this catarrhal condition is due in part, at least, to the unnatural use of the organs of speech we must admit, but its chief causes are undoubtedly intranasal pressure and hypertrophied pharyngeal and faucial tonsils.

Having considered the history of these cases and the objective symptoms and conditions, we are in a position to draw some conclusions as to the nature and cause of stammering.

In the first place, it is an affliction which is confined largely to the male sex—only five per cent. of my cases being female. It comes on during adolescence—the great majority beginning during the early part of the forma-

tive speech period. It is not self-limited and few get well or even improve without special treatment. Heredity is an important factor. Nearly one-third of my cases claimed to have had relatives similarly affected. This would indicate that the tendency or predisposition to stammer is inherited. Imitation, voluntary or involuntary, is a fruitful cause of this trouble. Twenty-four of my cases attributed the origin of their condition to the voluntary imitation of others. A severe nervous shock, the result of fright or injury, is also a common cause. One boy stammered ever since his head was ducked in a tub of cold water; another since he lost an eye in an accident; and another since he was frightened by a large sewer rat. The above observations or facts would seem to prove that stammering is due directly to some disturbance in the cortical speech mechanism, or in the nerve track uniting the cortical with the two peripheral speech mechanisms, viz., the vocal and the oral or articulating mechanism.

Now as to the treatment of stammering. In the first place we must study our case. No two are exactly alike. There are great differences in the varieties and outward manifestations of this affection, as well as in the cause. We must determine, if possible, just where the trouble exists. Is it in the cortical speech mechanism, the vocal mechanism, or in the oral mechanism, or in the nerve tracks which unite these mechanisms? Having reached a conclusion on this point, we must then seek for all possible causes. To be sure we may not find the original cause, for it may have long since ceased to exist and only the stammer remain, but anything which may interfere with the free and harmonious action of the three mechanisms which I have mentioned should be removed. Intranasal lesions, and all oral or pharyngeal and laryngeal irregularities, should be carefully corrected, and the general health of the patient put in the best possible condition. When all this is done the after-treatment is comparatively easy, and the prognosis for a permanent cure is most favorable.

The treatment consists in a systematic course of training which shall be of such a nature as to thoroughly break up certain faulty mental and muscular processes, and to substitute for them certain other natural and physiological processes which shall be governed entirely by an intelligent consciousness.

There is no trick about it. I have no specific to offer. There is no short-cut, easy

method. The treatment for stammering, like all other treatment, must be along the lines of sound physiological and psychological principles. The patient must be taught the exact sounds of the language, and if the speech muscles will not perform their functions properly, they must be trained into right action by the frequent repetition of appropriate exercises. It will not take long to prove to the patient that he can say some things without stammering sometimes; then he must be shown that he can say anything without stammering sometimes; then by frequent repetitions, and by encouragement or suggestion if you please, he must be brought to the point where he knows that he can say anything without stammering at all times and under all circumstances. Then and then only may a cure be said to have been effected.

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*NEURASTHENIA OR NEURO-STHENIA:  
WHICH? AND AN EFFICIENT  
TREATMENT.*

BY BEVERLEY O. KINNEAR, M.D.

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The symptoms which denote to the practised eye of the educated physician a case of neurasthenia are essentially those which indicate derangement of the nerve centers, of the cerebro-spinal centers, and also of the sympathetic system. There is a mingling of strength and weakness, an evidence of excessive nervous action, accompanied by constipation, frequently by digestive inactivity, and muscular weakness. There is an active condition of the brain, yet a disability for concentrated mental labor. There are cold extremities, demonstrating a deficient blood-supply and therefore a deficiency in tissue oxygenation and nutrition; but at the same time the motor apparatus of the legs in particular is often seen to be more excitable than in health, as shown by muscular twitchings and jerkings, especially at night. There are attacks of neuralgia, and tendencies to internal congestions.

Many such patients suffer from congestive headaches and sleeplessness; or they may sleep very soundly, but they are always found to waken unrefreshed. They sometimes feel as if they "must escape from their body," so uncomfortable, restless, and excitable are they. They may even have a good appetite, but their food does not appear to nourish them. The respiration is feeble, or shallow; they take cold easily, either in the head, throat, lungs, or muscles,

and are exceedingly sensitive to all temperature changes. They are subject to innumerable uncomfortable sensations—both mental and bodily—and in nine cases out of ten have so concentrated their mentality upon their feelings and sensations that they are a misery to themselves as well as to those who are brought in contact with them.

Hypersensation—both mental and physical—and malnutrition may be said to cover the expression of this disease.

By malnutrition can be understood an *excess* of nutrition, and therefore an excess of function in some parts of the body; as well as a deficiency in the circulation and oxygenation in other parts, illustrating diminished functional power.

It appears to the writer that this is precisely the condition in the so-called neurasthenia.

As this state may be reasonably demonstrated to be due to irregular action of nerve centers—if this be true—then the most efficient treatment for this disease is to restore the normal action and function in the nerve centers, and to supply to all organs and tissues their proper modicum of oxygen.

Let us then (so to speak) dissect the action of the nervous system in the train of symptoms presented, and observe also whether these symptoms be due to increased or to diminished function in central nerve cells.

We must for a moment go back to the causes, or some of the chief ones, which induce this disease. In general terms, any course of action or form of suffering which exhausts the nutritive nerve centers may originate it. Long-continued anxiety, grief, or fear may induce an attack. Unwearied labors of body and mind cause it. Venereal and other excesses are a fruitful source of the condition. The general rush of the age in which we live, in pleasure as well as business, and in the pursuit of knowledge in multitudinous paths, all have a tendency to induce overstrain and exhaustion in the nutritive central nervous system. Heredity is a prominent factor. Accidents, shocks, and the tuberculous diathesis give rise to the disease.

The nerve centers which regulate the nutrition of all organs and all tissues have become so overworked that the balance between these vaso-dilator nerves which expand the arteries, and the sympathetic ganglia—the chief function of which is now acknowledged to be to contract them—has been destroyed. The result is that the sympathetics function abnormally and contract the arteries

in the extremities, causing cool or cold hands, feet, arms, and legs, according to the degree of exhaustion in the vaso-dilator nerve centers.

Here, then, we have neurasthenia in one set of nerve centers, in those which dilate the arterioles, and thus supply oxygen and nutrition to the whole physical frame; while in the sympathetics, or those nerve centers which contract the arteries, we behold a condition of neuro-sthenia or hypernervous action; and it is the writer's opinion that it is this excessive action of the sympathetics which by expelling the blood from the long muscles and extremities not only forces the mass of the blood into the internal organs and cerebro-spinal nervous system, giving rise to all forms of congestions, as well as the general hyperesthesia, but this closed condition of the arterioles in all extreme and superficial regions, particularly in the abdomen and lower body, prevents the access to these parts of their normal supply of oxygen and food.

By the contraction spoken of the blood is forced in excessive quantity into the brain, so that during day and night the gray matter of this most important organ is kept at work, and the result is loss of mental power and weariness, losses of memory, of will power, of concentration, and of consecutive and well balanced thought. An exhausted brain can only signal weak commands, and a poorly nourished muscular system can only reply in a feeble manner. And yet the blood having been driven also in excess into the spinal cord, we have excitement of that organ, as demonstrated in all the forms of exalted sensation, the muscular twitching, and the general restlessness, the whole condition expressing a desire to be up and doing, but a physical and mental incapacity to meet the wishes of the patient. We have at the same time a more or less congested state of the liver, lungs, pancreas, and the whole upper body; therefore an inefficient action of the digestive organs and a partial loss of function in the air cells, so that they are unable to absorb the normal amount of air necessary to the healthful supply of oxygen to the blood, and through the circulation to all tissues.

Goodhart, in his "Common Neuroses," page 40, says: "Children are often brought in for an opinion because they are so thin. They are always eating, yet never do any credit to their victuals, etc. But these children are always twitchy, half-choreic, or excitable, and they are for the most part of a

nervous temperament." Added to the above symptoms we ourselves have noted for many years that such children have invariably cool or cold feet and legs, as well as cold upper extremities, demonstrating thereby a feeble circulation in the muscular apparatus of the greater portion of the body.

Francis X. Dercum, in his text-book on "Nervous Diseases," 1895, declares of neurasthenia: "It is extremely probable that brain, cord, and peripheral nervous system all suffer." This statement from so recent an authority voices our own conclusions without presenting the cause of the suffering referred to.

This we believe to be a powerful neurosthenic action of the sympathetic ganglia, causing a contraction of the general peripheral circulation, depriving all the parts involved of their normal amount of oxygen and nutrition, and giving rise to a general hyperemia of the brain and the spinal cord, internal organs, and upper body; this last condition interfering with nutrition and digestion by the exhaustion of the brain and spinal cord from overstimulation, as well as from the congested state of both excreting and secreting organs, demonstrating *neurasthenia* in the cerebro-spinal system, as opposed to *neuro-sthenia* in the sympathetic ganglia. Therefore it appears to the writer that neurasthenia is a general hyperemia of the brain, spinal cord, and sympathetic ganglia, but an exhaustion of the cerebro-spinal system, in contradistinction to excessive force displayed by the sympathetic ganglia, in the peripheral contraction of the arteries.

Whether this exposition be the true one or not, we all recognize the fact that in neurasthenia we have presented to us patients with a poor circulation, with a tendency to internal congestions, and with a feebly acting brain and muscular system.

If the foregoing be correct, then the main objects to be attained are: to restore a good circulation to the extremities, thus relieving the brain, spinal cord, and internal organs of their congestion, and at the same time to supply every tissue of the body with its normal amount of oxygen.

Before outlining the treatment which we have found most efficient in this disease, let us turn for a few moments to those methods which have been and are adopted to-day.

Rest, seclusion, feeding, and entire restraint from sympathizing friends and relatives was introduced by Dr. Weir Mitchell of Philadelphia. This treatment has had successes,

but also a large number of failures. Massage and electricity have been of service, but in severe cases are not curative. Strychnine has been tried and failed. The various sedatives, such as the bromides, sulphonal, and trional, are temporary quieting agents. Out-of-door exercise within the point of fatigue is beneficial. Change of scene and air to those who can afford it have often worked wonders, but require time and expenditure. Various preparations of iron, but especially the saccharated carbonate, and arsenic also, have been found useful; all of these treatments have been found serviceable and sometimes curative.

Our object is to show that this disease is due to hyperaction in one portion of the nervous apparatus and enfeebled action in the muscular and nutritive nerve centers, the latter being due in the first place to one or more of the originating causes set forth, and secondly to undue stimulation by the forcing of the blood in excess into the already weakened cerebro-spinal system; and also to advocate a treatment which has been proven to be effective in a large number of cases by the writer, and which has seemed to him truly scientific, because it will conquer quickly and safely the conditions of nervous derangement presented in neurasthenia.

How can normal distribution of the blood be accomplished? And how can we supply oxygen to the exhausted nerve centers and to all the organs and tissues of the body? By three methods: The internal administration of oxygen by inhalation; by the intelligent use of cold over the spine; and by those forms of electricity which are known to excite the nutritive processes.

During the past sixteen years we have made more than eight thousand personal applications of cold to the spine, and in a variety of diseases. We know therefore by long-continued clinical observation what results may be obtained by its use. The very first effect of the spinal ice bag is to dilate the arterioles all over the body, if applied from the fourth cervical to the last lumbar vertebra. But in nearly all cases of neurasthenia there is cerebral hyperemia, consequently the bags should only be applied from the fourth dorsal to the last lumbar vertebra. By this method the arteries may be dilated in the lower body, and through this dilatation the excess of blood is drawn from the brain and internal organs, as well as expelled from the spinal centers locally, over which the cold application is placed. We have carried out this

treatment without drugs many times, with excellent and permanent results.

Added to these applications, however, we have found that the proper inhalation of a pure form of oxygen, when properly combined, will ensure a more rapid progress toward recovery than by cold over the spine alone. The formula which has been found most efficacious, and which has been most widely commended by all authorities upon the use of oxygen, is composed of two parts of oxygen, one of nitrous monoxide, and one per cent. of ozone. This is the standard of the London Oxygen Hospital, and it can be obtained fresh from the leading druggists in the country.

It is most important to use oxygen for therapeutical purposes thus combined and prepared, because pure oxygen is so dense in its specific gravity that the arterioles will not absorb it unless combined with a gas of lighter specific gravity; and ozone is required to keep it fresh.

The fact that the capillaries will not absorb pure oxygen alone has been demonstrated by confining small animals in hermetically sealed tanks containing an atmosphere of pure oxygen. They rapidly die of asphyxiation.

Physicians too, as a rule, are not aware that commercial oxygen is never free from deleterious products, and should never be inhaled; but this is true, and cannot be too strongly impressed upon the profession. The inhalation of oxygen has been noted by many observers to increase the appetite and materially aid the general nutrition, and by its action upon the pneumogastric and phrenic nerve centers it expands the lungs and reenergizes the diaphragm into vigorous action; and this deepened respiration will sometimes continue for hours after its inhalation. The general glow which follows its use, and the sense of increased vigor which is a sequel to the inhalations, we believe can only be explained as due to an increase in the activity of all nutritive metabolic processes.

Do not make too long administrations of oxygen in neurasthenia, or any chronic disease. Two or three inhalations when the stomach is empty, three times a day—morning, afternoon, and evening—are sufficient in the twenty-four hours. The lungs must first be emptied by strong expiration, then place the tube in the mouth, and while the nostrils are closed draw the oxygen by long and deep inspiration into the lungs; and after retaining the inhalation as long as possible, let it slowly escape from the nose.

There should be an interval of two minutes between the inhalations. Pure oxygen should only be used for local application externally, to stimulate sluggish granulations, etc.

In all forms of disease where there is difficult respiration, and the cyanotic condition, the inhalation of oxygen is the remedy *par excellence*. The cold applications should be made over the spine for half an hour three times a day if the patient does not find them unpleasant, but if so, morning and evening; or even once a day will suffice.

Static electricity may be combined with the use of the ice-bag and oxygen inhalation, if found necessary.

We finish our paper with a reply to the query contained in the title:

Neurasthenia appears to us to be an excessive action in one set of nerve centers, united with an abnormally weak action in the cerebro-spinal or vaso-dilator centers; therefore a mixed condition of neurasthenia and neurosthenia.

202 W. 106TH ST., NEW YORK.

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*THE COMPARATIVE MERITS OF RESORTS  
IN NEW MEXICO, COLORADO, AND  
ARIZONA.*

By S. E. SOLLY, M.D.

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We all have heard the saying of Mrs. Malaprop, "Comparisons are odorous;" and I trust I may not be forced to exclaim with Hamlet's uncle, "My offense is rank; it stinks to heaven," but rather may rest with a quiet conscience, having presented you with comparisons redolent of reason, and fragrant with facts.

Of the resorts to be considered, the most northern (Estes Park) is parallel with Philadelphia, while the most southern (El Paso) is on a line with Atlanta, Georgia. El Paso lies in Texas, just beyond the border of New Mexico, but climatically it belongs to New Mexico rather than to Texas, and is therefore so considered in this paper. It is obviously impossible to make mention of all the places in this section of the country which are used as health-resorts. Reference is made only to those which are most characteristic, or to those of which the meteorological data are fullest. In the appended tables I have accorded the substance of all the weather reports obtainable; yet there is much desirable information that at the present time is not forthcoming, and therefore these studies are so far incomplete. The statements made

will be found to be based upon the facts given in the tables and upon the references quoted.

Before proceeding to discuss the differences between these resorts it will, perhaps, be well first to consider in what respects they are similar. Owing to their great distance from the ocean and their relation to the main mountain ranges of the continent, the climate of these States is everywhere extremely dry, with brilliant sunlight and with unusually high solar and relatively; and indeed on the high ground actually, low shade temperatures; the nights are cool and the days warm, quite beyond anything experienced in any other climate at present available for invalids.

The annual means range as follows: Relative humidity from fifty per cent. to forty-two per cent.; absolute humidity between 1.79 grains and 3.25 grains per cubic foot of air; rainfall from seven to sixteen inches; the number of cloudy days from thirty to fifty-seven; and the temperature from 40° at Estes Park to 72° at Yuma. The elevations vary from 7200 feet at Estes Park to 140 feet at Yuma. The latitude extends from 40° to 33°. The annual wind movement ranges from 6663 miles to 3379 miles.

When we come to consider the differences between the climates of these resorts, upon looking at the appended tables it will be noticed that the chief points of distinction are in temperature, wind movement, latitude, and elevation. A comparison between the

temperatures of places of similar elevations shows that latitude does not exert as great an influence as altitude. And in comparing resorts of different elevations it will be seen that altitude is all-important in modifying temperature and, in a less degree, wind-velocity. For these reasons it would appear that the best method of arranging these resorts for purpose of comparison is in the order of their altitude.

As this country lies more or less under the lee of the Rockies it is necessarily dry. In Colorado the bulk of the precipitation occurs in the last two months of the spring and of the summer, while in New Mexico and in Arizona the spring is much drier and the rainfall, which is usually less in amount, occurs both in the winter and in the summer. In all these resorts the autumn weather is about equally dry and bright, and is of a pleasant temperature. In all of them the winter weather is good, being however somewhat more severe as the more northern latitudes are approached. The springs are drier, pleasanter, and less stormy in the southern half of New Mexico and of Arizona than in Colorado and in northern New Mexico.

In Colorado and in northern New Mexico the summer weather in places above 5000 feet is cool and moderately dry, and very pleasant, healthy weather for the visitor and invalid. In southern New Mexico and Arizona, except at elevations of 7000 feet and

## ANNUAL AVERAGES.

	Elevation.	Latitude.	Soil.	Normal air-pressure.	TEMPERATURE.			HUMIDITY.				Number of cloudy days.	Mean monthly wind movement.
					Annual.	January.	July.	Relative humidity.	Absolute humidity.	Dew-point.	Rainfall.		
Estes Park.....	7200	40	Gravel.	..	40	24	60	..	..	..	16.31	..	..
Santa Fé.....	7000	35.41	Gravel.	23.26	49	28	70	48	1.79	36	14.6	48	4681
Colorado Springs.....	6000	38.51	Gravel.	24.03	47	26	69	50	1.84	29	14.4	57	6666
Silver City.....	5800	32.46	Gravel.	24.26	54	37	72	50	2.47	36	14.58	37	2476
Glenwood Springs.....	5700	..	Adobe.	..	48	22	78	..	..	..	15.96	..	..
Boulder.....	5300	40	Sand.	..	47	..	..	..	..	..	19.21	..	..
Denver.....	5300	39.45	Sand and adobe.	24.73	50	27	73	50	2.04	31	14.4	57	4980
Cañon City.....	5300	38.30	Adobe.	..	53	32	74	..	..	..	11.38	..	..
Prescott.....	5300	34.33	Sand and adobe.	24.76	53	34	74	51	2.31	35	16	51	4898
Pueblo.....	4700	38.18	Sand and adobe.	25.27	52	29	76	49	2.14	31	12	53	5438
Oracle.....	4500	32.50	Gravel	..	63	45	80	22†	..	26†	17.7	..	..
Las Cruces.....	3800	32.17	Adobe.	26.11	58	39	77	65†	..	47†	7	20	4948
El Paso.....	3700	31.47	Adobe.	26.21	64	44	83	48	3.15	40	9	39	3941
Eddy.....	3200	31*	Adobe.	..	63	42	82	..	..	..	11	..	..
Tucson.....	2400	32.14	Sand and gravel.	27.45	69	50	88	42	3.25	44	12	57	3735†
Phoenix.....	1100	33.28	Adobe.	28.77	69	49	90	45	3.5	42	7	54†	3379
Yuma.....	140	32.44	Sand.	29.92	72	53	92	46	3.19	43	2.9	15	4317
Cairo, Egypt.....	90	30.31	Sand.	..	72	54	86	61	5.42	58	.53	..	..

\* Approximate. † 1896.



SPRING SEASONAL AVERAGES.

	Seasonal temperature.	Night temperature	Relative humidity.	Absolute humidity	Rainfall.	Number of cloudy days.	Hourly wind movement.
Estes Park.....	48	35	52	1.89	6.19	11	7.5
Santa Fé.....	48	35	46	1.89	4.5	20	11.08
Colorado Springs.....	53	..	..	..	..	..	8.8
Silver City.....	53	..	..	..	4.9	..	..
Glenwood Springs.....	48	..	..	..	..	..	..
Boulder.....	48	33	49	1.88	5.8	20	7.4
Denver.....	52	36	44	1.86	3.1	7	8.4
Cañon City.....	51	..	..	..	..	..	..
Prescott.....	51	..	..	..	..	..	..
Pueblo.....	51	34	45	41.9	3.6	20	8.8
Oracle.....	50	33	..	..	1.5	..	..
Las Cruces.....	58	..	..	..	4	18	..
El Paso.....	64	50	36	2.36	0	6	6.7
Eddy.....	64	..	..	..	4	..	..
Tucson.....	62	47	37	2.27	1.2	5	5.3
Phoenix.....	67	..	33	2.23	3	7	5.6
Yuma.....	70	54	43	3.43	3	4	6.7
Calro, Egypt.....	74	..	52	4.94	13	..	..

SUMMER SEASONAL AVERAGES.

Calro, Egypt.....	80	..	51	10.04	..	..	..
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AUTUMN SEASONAL AVERAGES.

	Seasonal temperature	Night
Estes Park.....	43	..
Santa Fé.....	48	..
Colorado Springs.....	55	..
Silver City.....	55	..
Glenwood Springs.....	47	..
Boulder.....	49	..
Denver.....	50	..
Cañon City.....	53	..
Prescott.....	53	..
Pueblo.....	52	..
Oracle.....	55	..
Las Cruces.....	59	..
El Paso.....	62	..
Eddy.....	65	..
Tucson.....	68	..
Phoenix.....	69	..
Yuma.....	73	..
Calro, Egypt.....	73	..

WINTER SEASONAL AVERAGES.

	Seasonal temperature.	Night	Relative humidity.	Absolute humidity	Number of cloudy days.	Hourly wind movement.
Estes Park ..	24	..	..	..	56	13
Santa Fé.....	30	..	..	..	13	6.8
Colorado Springs.....	39	..	..	..	13	8.4
Silver City.....	37	..	..	..	..	..
Glenwood Springs.....	27	..	4.9	..	..	..
Boulder.....	24	..	..	1.51	13	..
Denver.....	30	10	54	1.66	12.1	7.3
Cañon City.....	34	..	..	1.63	8	6.3
Prescott.....	35	27	57	1.4	5	..
Pueblo.....	31	15	57	1.16	1.4	11
Oracle.....	45.2	37	..	4.1	..	..
Las Cruces.....	43	..	43	1.37	1.17	11*
El Paso.....	46	33	52	1.84	1.3	9
Eddy.....	40	..	..	1	12	..
Tucson.....	49	35	48	1.89	3	11
Phoenix.....	51	..	53	2.2	2.6	11
Yuma.....	56	43	47	2.36	1.6	6
Calro, Egypt.....	58	..	70	3.57	..	..

more, the excessive dry heat is very trying to all but the robust, as there are only a few invalids whose health is improved by these extreme conditions. A glance at the column showing the night temperatures emphasizes the difficulties to the invalid of the summer climate in the lower and southern resorts of this region. The dust, which is generally abundant and irritating on the lower ground of New Mexico and Arizona at all seasons, is especially so in the summer.

In most of the reports of the health-resorts the character of the soil is not detailed, but inquiry reveals the fact that in many of the resorts, especially on the lower ground of Arizona, the soil is mainly adobe, the towns

being built in the river valleys, so that a great deal of fine alkaline dust arises from the ground in hot, dry weather, while rain or snow will lie upon the surface in cups and hollows for many days longer than it does upon the sandy or gravelly slopes or benches which are generally found situated above the river bottoms; and it is very obvious that the local conditions of these resorts for the most part are very inferior. The majority of the town sites have been chosen for convenience to water rather than for reasons of

\* 1896.

† Total rainfall for Boulder is taken from one year only; September is missing. The wind and humidity of Phoenix is based on one year only.

health, and the difference in the hygiene of a town situated upon a hillside or mesa to one in a river bottom is perfectly astonishing, so that it may be said the environments of many of these resorts are very unworthy of their climates.

What has been said about the town sites is equally true of the accommodations. Most of the towns have not been built for, nor do they cater to, the delicate or fastidious invalid. The lack of interest and amusement or occupation is also a serious drawback in many of these places. And in considering the powerful influence of mind over body, it is most true of the majority of invalids, especially of the consumptive, that

Absence of occupation is not rest,  
And a mind that's empty is a mind distressed.

Before proceeding to give the specific information about the different resorts, it is perhaps well to discuss briefly what is known or believed to be true of the general effects upon health or disease of the chief factors of climate. And as phthisis is the most common and most important of the diseases for the amelioration of which these climates are sought, we shall consider the matter from this point of view. As a broad general statement it may be said that consumption is most prevalent in proportion to the temperature and the humidity of the climate: (1) in damp, cold climates; (2) damp, hot climates; (3) dry, hot climates; and (4) dry, cold climates; while in curative effects it is true in the reverse order. This indicates in a general way that dryness is of benefit, and humidity obnoxious to phthisis, while the relative effects of heat and cold depend upon the degree of dampness. Heat in a damp climate, except when tropical, is less harmful than cold, while heat in a dry climate is less beneficial than cold—that is, always to the vital resistance, and generally to the disease.

"Apparently humidity of the air, apart from other factors, does not in itself produce phthisis. The comparative immunity from consumption among the men of the British navy contrasted with those of the army, and the rarity of the disease in many islands, such as the Faroe, the Shetlands, the Hebrides, and Iceland, show this. The influence of these climates and of sea-voyages on the disease when developed and active has, however, not been shown by the evidence of others nor by my own observation to be advantageous, removals from the sea being generally of most

benefit. Where advantage has been derived from a sea climate it would appear probable that it was owing to the great purity of the air or the elimination of unsanitary conditions and hurtful occupations.

"Dryness of the air, on the contrary, is known to be of positive benefit to the consumptive. The excellent results obtained from desert air (apart from great altitudes, which we shall consider later) are too well known to quote at length.

"In crediting dryness of air *per se* with a beneficial influence upon phthisis, we must not forget that some of the credit, at least, belongs to other necessary accompanying factors of a dry atmosphere, namely, more powerful sunlight and heat, less depressing cloudy weather, cooler nights and shade, and a higher electric tension of the body. What is also of prime importance is the greater opportunity for exercising and resting in the open air, and the free access of fresh air to the house by day and by night while the patient is indoors."\*

*Range of Temperature.*—Hirsch writes that "severe and sudden changes of temperature have no more determining influences *per se* than has the absolute height of the temperature." He shows further, however, that variability, if accompanied by dryness, is usually beneficial; but variability with dampness is positively harmful. These statements are confirmed by the evidence of many other authorities.

*Wind.*—"Consumption is neither more nor less prevalent in a place simply because it is windy, nor are consumptives as a class made better or worse by this element alone. It is beneficial or detrimental according to its temperature and humidity and the patient's condition—that is, according to his need of stimulation or sedation.

"Cold, moist wind sometimes soothes, but more often depresses, the patient, while it aggravates catarrhal affections if they be of a relaxed type.

"Cold, dry wind simply stimulates or else irritates the patient, and hence it improves relaxed catarrhal conditions, but makes those which are inflammatory worse.

"Warm, moist wind lessens irritability, and is either soothing or depressing.

"Warm, dry wind acts as a tonic or increases irritability."†

\* "Handbook of Medical Climatology," by S. E. Solly, M.D.

† *Ibid.*

*Sunlight.* — Sunlight promotes healthy growth, increases the oxidation of tissue, and is a pleasant stimulant to the nervous system. Sun-heat is the best and cheapest of germicides, and is valuable as provocative of open windows and an open-air life. When moderate, it is an agreeable sedative; but when excessive, with dry air, it is very irritating to the nervous system, interferes with the proper action of the liver and kidneys, and prevents the taking of beneficial exercise.

While the dryness of the air makes the sensible temperature lower, yet when the temperature is absolutely high it much increases its irritating and so weakening effects, though at the same time it may be markedly beneficial in drying up ulcerative processes in lung tissues. Excessive heat with dampness is not irritating but far more depressing, and accelerates tuberculous processes.

*Barometric Pressure.* — Hirsch has shown most conclusively that decreased barometric pressure tends to confer more or less immunity from phthisis. The marked decrease which is present in all high climates has been demonstrated by Egger and many other observers to have a remarkable effect upon anemia, by increasing the amount and quality of the red blood-corpuscles and hemoglobin; that these blood changes are brought about, not by the quantities of dryness, sunlight, or other climatic factors in high or other climates, but by the diminished barometric pressure, was proved conclusively by the classic experiment of Regnard, who, at sea-level, kept a rabbit in a bell glass under diminished air-pressure, equivalent to the atmosphere at 6000 feet elevation, for a month. When the rabbit was removed it was found that the same blood changes had taken place as occurred in rabbits transferred from sea-level to a climate at 6000 feet elevation.

The rapid and remarkable improvement in the local and general conditions coincident with these blood changes in consumptives transported from sea-level to high ground of 3000 feet and upwards has been demonstrated by numerous careful observers in Europe and in North and South America. As far as we at present know, the only successful means of combating chronic tuberculosis is by improving the resisting power of the blood; it therefore follows that that climatic factor which most fully and directly brings this result about is the one to be especially regarded in choosing a climate for the cure of consumption. There are, however, other considerations which enter into the question of

the appropriate climate for a given case of consumption: these are mainly the effects upon the heart, nervous system, and the mucous membranes of the respiratory tract; for the climate may be ideal in directly opposing the development of the disease-germs, yet if it mechanically embarrasses the efficient action of the heart or overexcites or depresses the nervous system, or by its stimulation aggravates and increases the irritability of the pneumonic or catarrhal process, or on the other hand by its extreme sedation and therefore depressing effects aggravates them, it may be unsuitable for a given case.

As confirmatory of the general effect of climate in the treatment of tuberculosis as demonstrated by the physiological experiments just spoken of, I refer you to the analysis of some 8000 cases of phthisis treated by climate given in my work upon Climatology. They were all the reports that a careful search through the literature of the subject revealed to me. The number being so large, it may be fair to assume that the law of averages justifies a belief in the general truth of the statistical results attained. The reports are by a number of eminent observers from all parts of the world, and were readily grouped under the following heads: Under the title of home climates are placed those which remained in the same climates in which the disease developed; sea climates (ocean, island, coast—ocean covers only those who took sea-voyages); lowland climates (lowland, sanitariums, desert); highland. The last covers only reports of cases treated in climates above 5000 feet altitude.

The statistics show an almost steady rise in the percentage of improvement from the ocean to the altitudes. The percentage of improvement among those who took sea-voyages was 54 per cent.; in lowland climates, 57 per cent.; in lowland desert climates, 65 per cent.; while in altitudes the improvement runs up to 77 per cent. From this we learn two things: that as a rule the consumptive improves the further he is removed from the sea influence, as shown in the contrast of the percentage of fifty-four and sixty-five; and further, the benefit of altitude over lowlands, even in desert life, is shown by the difference between sixty-five and seventy-seven. Therefore, while the desert air of Arizona will cure more cases of consumption than the sea air of the coast, say of southern California, yet it will not cure as large a proportion as will the mountain air of the highlands.

In deciding what cases are exceptions to these general rules, it will be well roughly to classify cases of phthisis as follows: First, those in whom the tendency to the spread of tuberculosis is the most prominent symptom, which may be called, for convenience, the tuberculous cases. Second, those consumptives in whom there is an especial tendency towards inflammatory processes, and those persons are usually of the erethic temperament; this group may be termed the pneumonic. The third division is those in whom there are catarrhal tendencies of a relaxed or low inflammatory type. Such cases are usually anemic and have phlegmatic temperaments. This group may be termed the catarrhal. It is, of course, understood that all are tuberculous, and most have some tendency towards inflammation or catarrh, or both.

As in the tuberculous cases the important matter is to destroy the germs and remove the anemia, it follows that these cases should be placed on high ground where the air is not only dry and sunny but also cool and stimulating. When the patient is able to exercise, the cooler air, such as found during the winter in most resorts of Colorado, is most desirable, and the cure progresses more certainly and rapidly. The cold acts more beneficially than heat upon the usually depressed nervous system of this class of cases, and also induces greater appetite and increased vitality. When the patients are too feeble to exercise, it is sometimes best to begin their cure in a warmer and lower climate, and later to transfer them to the higher and cooler regions.

With respect to the effect of altitude upon the heart, the tendency in the young towards dilatation from a weak muscle is not a contraindication for the use of a high climate, if the patient is kept extremely quiet for the first few weeks after his arrival. But in persons past middle life, and those in whom the dilatation is accompanied by damaged valves, high climates are dangerous. Valvular disease with good compensation is not necessarily a bar. But time does not permit the discussion of this subject in further detail.

With respect to the effects of altitude and cool air upon nervous irritability, it is necessary to distinguish between the irritability of weakness and the inherent irritability, such as is exhibited in the erethic type. The former are benefited, the latter injured, by altitude and coldness. A desert air benefits,

though in a lesser degree, the first class of cases, and it aggravates the condition of the second class by the excess of heat and dryness. Old age and atheromatous conditions are unsuitable to high and to cold climates.

The extent of lung involved plays an important part in determining the elevation most beneficial to the patient. If marked dyspnea, due to the extent of the lung involvement and not to the anemia or weak cardiac muscle, is present at sea-level, a case with this symptom must be kept on low ground. This particularly applies to obstruction in the left lung.

With respect to the pneumonic cases, the altitude must be moderate, and also the dryness; while in the catarrhal cases the altitude should be a medium one because of the susceptibility to cold-catching from the sudden changes, and also because a greater warmth of air is needed than for the purely tuberculous cases; but dryness is of the first importance.

To turn from this brief consideration of pathological conditions to a short discussion of the different effects of the regions under consideration, it may be said that in the winter climate of such places as Yuma at 140 feet elevation we find the benefits of dryness and heat. At Phoenix (1100 feet) similar conditions prevail, modified as regards local humidity by the irrigation which produces a light morning and evening fog. The heat, however, is not as excessive, and the accommodations and general resources are much better.

At Tucson, 2400 feet up, we still find much of the influence of the desert air with some indications of the benefits derived from elevation. Here the accommodations, while not so good as those at Phoenix, are rapidly improving. El Paso and Las Cruces, 3700 and 3800 feet respectively, are near together and very similar in climate. El Paso is more dusty, and has some of the resources of a city. It is probably more subject to windstorms than Las Cruces, which is better sheltered and cleaner, but less interesting.

Oracle, 4500 feet, forty miles stage-ride from Tucson, is removed from the dust and turmoil of the cities, and is said to be pretty and attractive, with two fair hotels, a pleasant country to ride and drive over, but few interests.

Prescott, 5300 feet, has many points of climate in its favor, but has practically no resources for invalids.

Silver City, 5800 feet, has a remarkably

fine climate, but indifferent accommodations and few interests except mining.

Santa Fé stands at 7000 feet elevation, has a magnificent climate, and is an interesting town with fair accommodations, but unsanitary conditions.

Las Vegas, 6500 feet, has a good winter climate, but the accommodations are inferior.

The Las Vegas Hot Springs, 7000 feet, are in a cañon. There is a fine hotel, which, however, is very seldom open. The place has a good climate, but is monotonous and uninteresting, and the springs are almost negative in their therapeutic qualities.

Cañon City, 5300 feet, is a warm, sheltered, pleasant winter resort. It is a quiet but agreeable little town, and the accommodations are very fair.

Denver, 5300 feet, is colder and more exposed, but probably is somewhat drier and has a better soil than Cañon City. It has the resources and objections necessarily associated with a handsome and progressive city of 150,000 inhabitants.

Colorado Springs, 6000 feet, has about the same winter temperature as Denver, is slightly drier, has less snow, but rather more wind. It was laid out as a health-resort upon a mesa near to, but sufficiently removed from, the shadow of Pike's Peak. It is a handsome residential town without manufactories, and with first-class resources of all kinds, and beautiful suburbs.

Estes Park is a beautiful mountain valley. It is much used by invalids with great benefit during the summer months, and a few have wintered there, finding it at that time monotonous but healthful, and the weather much milder than was to be expected. The accommodations are fair. There are other parks, such as Manitou Park, that are pleasant and healthful for summer residence, similar in climate and in character, but of which no reports are forthcoming. Manitou Park has especially good and attractive accommodations and resources.

In comparing all these resorts, it may be said that Colorado Springs possesses the most stimulating, and Yuma the least stimulating, climate.

The winter and fall climate of all these places is good, and is more bracing the greater the altitude, and the higher the latitude.

The spring weather in New Mexico and in Arizona is, as a rule, much better than that in Colorado.

The summers on the high ground of Colorado are cooler and pleasanter, and they are

as dry as those of like elevations in New Mexico and in Arizona, where the resorts of moderately low elevation are impossible, on account of excessive heat.

There is generally more wind in the more northerly and elevated resorts; the dust, however, is more objectionable in the more southerly and lower resorts, because the soil is usually adobe (clay) and alkaline, and so rises readily in the form of a light irritating powder, while on the high ground the soil is more apt to be gravel or granitic detritus.

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*THE BENEFICIAL EFFECT OF THE CLIMATE OF SUMMERVILLE, S. C., ON AFFECTIONS OF THE THROAT AND LUNGS.*

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BY WILLIAM HUTSON PRIOLEAUS, A.M., M.D.,  
Summerville, S. C.

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To every physician, as the winter season approaches, the question of providing a proper sanitarium for his patients, and one which shall be eminently suitable to their needs, causes much care and anxiety. It is a primary requisite that the climatic conditions of the place resorted to be favorable for the purpose of bringing about the desired results.

Excellence of climate, of course, should be attended by a certain degree of comfort and pleasure, as being conducive to convalescence. Frequently resorts which have obtained a reputation by no means merited are recommended to people as the ideal places where their health may be entirely restored. This is usually the case where companies organized for land improvement have employed all kinds of methods, whether of a questionable nature or not, to exhibit to the world the supposed virtues and advantages of certain places, thereby enabling them (the companies) to secure private gain.

As a practising physician and one naturally interested in promoting and securing the public health, I deem it my bounden duty to set forth as far as lies within my power the unexcelled advantages of climate possessed by Summerville, S. C. I take great pleasure in doing this, cognizant of the fact that as a resort for people in any way troubled with diseases of a pulmonary kind, and also as a place in which to pass the winter months, Summerville to-day stands unsurpassed, though its rivals are numerous. I sincerely trust that this article will meet the hearty approval of many persons interested

in the selection of such a resort and be the means of inducing many to spend the winters in this ideal spot.

In Hare's "System of Practical Therapeutics," vol. iv (just published), page 67, Solly, "On the value of climate in tuberculosis," says: "It is found that, other conditions being equal, consumption is most prevalent in climates in proportion to the temperature and humidity as follows: First come damp cold climates; second, damp hot climates; third, dry hot climates; fourth, dry cold climates; and in promoting recovery from consumption, as a broad statement the reverse order holds good. Thus in a general way it may be said that dampness is harmful to the consumptive, and dryness beneficial."

Again, on page 70, Solly regrets that no results in tuberculosis have been reported from Southern inland places.

It shall be my purpose to give a short account of Summerville, to record so far as I am able the health-giving qualities of its climate, and to mention those classes of cases which derive benefit from spending one or more winters here.

Summerville is situated in the heart of a primeval pine forest, on a sandy ridge, about twenty-two miles from Charleston, S. C. In winter the climate is delightful, the air cool and bracing, and fragrant with the sweet odor of the pine. The town is near enough to the sea coast to cause the atmosphere to lose the aridity of a sandy plain; at the same time sufficiently distant to be free from all dampness. Unlike other places, the local laws prohibit the cutting down and destruction of pine trees. Transgression of any of these laws is always attended with a heavy penalty. The motto of Summerville—"Sacra pinus esto"—is strictly observed by its citizens. Because of this Summerville presents a unique appearance, with its pines growing in the middle of the streets, on the sidewalks, in the gardens, and in fact everywhere,—for where Nature has placed them, there man in his wisdom has allowed them to remain. Here is the long-leaf pine, whose balsamic odor is like life to the poor invalid, and whose tremendous height shields his dwelling-place from the cold wintry blasts. Truly we have an ideal spot for the invalid—pure air, delicious water, sandy soil, and a forest of pines. Hardly ten years ago, at the International Congress of Physicians in Paris, Summerville was spoken of as one of two places for the sufferer from lung troubles to go to. Again, in 1887, Denison in a paper on "The Preferable Climate in

Phthisis," delivered before the Ninth International Medical Congress at Washington, D. C., insisted on "purity, rarefaction, dryness, coolness, with gravelly or porous soil," all of which Summerville possesses to an extraordinary degree.

The average maximum and minimum temperature for sixteen years was respectively 71.6° and 58.9°. Thus, according to Solly and Denison, Summerville with its cool dry climate must be admirably adapted to the needs and requirements of consumptives.

Year by year the number of people who come here is increasing, and the dread of the natives is that too many will discover the health-giving quality of their climate. There is no sanatorium established in the town, but two first-class hotels and many private boarding-houses furnish ample accommodations for visitors.

Summerville's climate cannot bring back the dead to life, neither can it restore to health one in the last stages of consumption; but to sufferers from incipient phthisis, bronchitis, asthma, or the grip, it offers untold advantages. The cool bracing air, filled with ozone and the odors of the pine, acts like magic on mucous membranes and restores them to a normal healthful condition. Summerville is in the center of the "Sunny South," and there are few days when one cannot go into the open air and remain there with benefit to his health. Invalids will find the climate most beneficial from October to May, for during that time there is bright sunny weather and the atmospheric changes are seldom so sudden as to cause any serious anxiety or discomfort.

Besides being a resort for invalids, Summerville's many natural and historic attractions make it a sweet retreat for tourists, and its quietude a healthful resting-place for the nervous and those suffering from insomnia. Many families winter here year after year, for no other reason than to escape the cold of the North and West.

No statistics of cures or beneficial effects to consumptives are available; in my own experience I can recall case after case where patients who have come here either in the first or second stages have improved greatly, but unfortunately I can also mention many sad instances of consumptives beyond human aid being sent here only to be told that they have come too late—and must return at once to their homes.

Man's inhumanity to man  
Makes countless thousands mourn.

This can be applied to physicians who advise patients in the last stages of this dread disease to leave their families and friends to die among strangers. However, I shall not feel that I have written in vain should only one of the many who suffer gain health and happiness from the piny air of Summerville.

*TAKA-DIASTASE AS A NEW DIGESTIVE AGENT.*

BY F. ROBERT BOYD, A.M., M.D., ST. LOUIS, MO.

Chemical manufacturing companies have become so numerous, their literature and samples so plentiful, and their efforts so persistent to foist them upon the medical profession, by the aid of whose influence, in giving them endorsement, they hope to evolve a demand for the same, that the members of the profession have in many instances grown tired, and while they may out of courtesy treat these agents kindly, yet for various reasons they must ignore both their stacks of reprints and their samples. These manufactured products have become so numerous that no physician can afford to give them his time and attention. In every State we find numbers of great manufacturing plants devoted to these various chemical products, each one struggling for the recognition of the medical profession, and to attempt to read all their literature simply means to read nothing else.

We are all creatures of habit, and liable to become more or less extreme in both thought and action, and to pass one means that we pass all; and I think there are few of us who give ourselves up to the candid, thoughtful perusal of any of this literature thrown upon our tables with samples. I think, in fact I know, that the results would in the majority of cases prove fruitless if we did, and thus we excuse ourselves from this task. How much we may lose by not being able or not having time to go over it, and select and appropriate the best of it, we may never know. I am inclined to believe, however, that the really valuable and meritorious of this vast product will in some way command our notice, and under the law of the survival of the fittest sooner or later become recognized.

The idea I am here trying to impress was recently brought to my own mind with such force as to cause me to reflect seriously upon this question, and it has been of such great interest and benefit that I hope I shall be able to secure the attention of other physicians. I believe it is over a year since I

remember seeing the term "Taka-Diastase" for the first time, and since that both samples and reports of cases treated with it have been brought to my attention without my becoming interested in it sufficiently to induce me to prescribe it. I have for the past twelve years been paying special attention to diseases of the stomach and intestines, and have felt that the usually prescribed course for functional difficulties along the digestive tract was about as near perfection as it could be made. The past twenty years has been a history of persistent attempt, with failure, to procure an efficient diastatic ferment. Some of the most eminent chemists of this country and Europe have from time to time set up claims for different inventions, which have not in a single instance proved more valuable than any other pancreatic ferment, and with the exception of a few instances—in malt productions which have manifested a weak diastatic power—all of them have depended upon a pancreatic reaction for their results, and in the hands of the profession they have fallen far short of the claims set up for them, and the hope of both doctor and patient.

I think I am not amiss in stating that the skepticism of the profession in regard to all of the digestive ferments has largely grown out of the fact that neither pepsin nor pancreatin, when introduced into a stomach in which undigested and insoluble starch products have set up an irritation through unnatural fermentation, can render much assistance in giving that stomach or intestine physiological rest. The mistake almost always made is in concluding that the cause of the pain and general disturbance of the function is due to undigested proteids which can be broken up and rendered assimilable by pepsin; but pepsin will do but little if any good. Then the physician, on the theory that either the pepsin is inert, or the presence of fats retards its action, exhibits pancreatin, trypsin, or some other intestinal digestive ferment without proper diastatic power, and again fails; and so his patient goes from one to another, only to meet with disappointment from year to year. I believe that there are many physicians all over this country who have had just such an experience as I here portray, and if I may point out to them a nearer, easier road out of this wilderness than the old beaten path they have been for years pursuing, I shall feel this effort has not been in vain.

My attention was attracted toward Taka-Diastase in a practical way during the last

session of the Missouri State Medical Association, not by any discussion of it by the members of that Association, but by Mr. Takamine himself, who, in the exhibit-room, was conducting a series of experiments with his product, Taka-Diastase, upon thick solutions of boiled starch. I immediately noticed the wonderful facility with which a few drops of the Liquid Taka-Diastase would convert it into a soluble dextrin, only requiring about five minutes to complete the process. The fact that I had on my hands at this time four cases of stomach trouble which were giving me much anxiety made me take a greater interest, I presume, than I otherwise would have done. I had the good fortune to make the acquaintance of this distinguished Japanese chemist, who I soon learned had some valuable knowledge of the function of digestion not made clear in the physiological text-books: for instance, the statement that sixty-five or seventy per cent. of all cases of indigestion are due to undigested starch products, which, escaping solution in the mouth, pass on to the stomach, and not being soluble with the albumens, after a time become local irritants like any other foreign substance.

If this statement be true, it explains why the administration of pepsin and pancreatin so often fails in cases of acute and chronic indigestion. Pepsin under an acid reaction can only attack proteid substances, converting them into peptones, and the pancreatin in an alkaline medium can exert only a very limited influence over starchy substances; hence those starches which escape solution in the ptyalin must remain insoluble, and like other organic substances in the presence of heat and moisture must ferment, bringing on the numerous train of symptoms incident to such action.

Mr. Takamine put into my hands a sufficient quantity of Taka-Diastase to give it a fair trial, and I herewith submit the following report as a result of my experience with it:

CASE I.—Mrs. W., aged thirty-one; married; has five children. She is a delicate woman and has been sick a great deal, and upon becoming pregnant the sixth time called in a midwife, who punctured the membranes. Five days afterward I was called to help her out, and found her nearly exsanguinated, with a small retained placenta (she was perhaps less than three months pregnant). I carefully curetted and douched the womb, expecting her to get along. I was sent for again to relieve the intense burning in the throat and stomach, of which she complained night and

day. She did not rally well, but there were no symptoms of septic poisoning present. I prescribed for her pepsin and willow-charcoal, adding also small doses of powdered nuxvomica, which did little if any good. The result was I was sent for again, and there being no rise of temperature nor any symptoms of septic absorption I gave her a reliable preparation of pancreatin and moved the bowels with Epsom salts. This seemed to afford a measure of relief. Upon the afternoon of the day following, not more than an hour after I had received my sample of Taka-Diastase, I received a telephone message to come to Mrs. W.; she was growing worse every hour. I went expecting new and fearful developments, but found her suffering from the same burning, which she said was simply unendurable. I now took her off every remedy I had before prescribed and began giving her one capsule of three grains of Taka-Diastase every two hours. She had no trouble in twenty minutes after taking the first dose, and has had none since, having made a good recovery.

CASE II.—A married lady, twenty-six years of age. Never pregnant. Came to me for dyspepsia. Said she had been under the care of several other good physicians without relief, until she began to be discouraged. I thought the stomach trouble arose as a reflex from some remote disease, and examined both rectum and uterine organs. I began treating her for chronic cervical endometritis, which for a time promised good results, but was soon followed by the old trouble, seemingly intensified, and do what I would I could get no benefit worth speaking of. Pepsin, pancreatin, charcoal, baptisia, glycogen, peroxide of hydrogen, the mineral acids, and stomach tonics—all proved worthless. Douching the stomach would relieve only while it was being done. The liver refused finally to respond to the more powerful cholagogues, the stools became clay-colored, and I began to fear my patient was beyond help and proposed to her that she go with me to see another physician, which she consented to do. After prescribing Taka-Diastase in Mrs. W.'s case with such good results, I sent the lady word on Friday evening to call upon me, which she did, and I began to give her Liquid Taka-Diastase, which gave her almost immediate relief. She has since that time had the intense gratification of complete relief of all stomach difficulty, and I have proceeded with her treatment successfully.



CASE III.—Mother of the preceding case, who also came to me for stomach trouble. She is sixty years of age, large and robust; has always worked hard, raised a large family, and seen many hardships. She has been sick but very little, but has for two years past suffered much with indigestion. Hemorrhoids have also developed and given her much trouble during the last year. She has gone through the usual experience of resorting to many physicians and remedies without material benefit. Her chief symptoms when she came to me were constipation, excessive dryness, and a feeling of loss of power in the lower bowels, with intense burning pain and bloating, coming on about two hours after eating. I prescribed tablets aloin, belladonna, nux vomica, and cascara sagrada, one at bedtime, and

Liquid Taka-Diastase, 1 fluidounce;  
Essence pepsin, 3 fluidounces.

Mix. Sig.: One dessertspoonful after each meal.

This formula gives the Taka-Diastase time to render soluble all the starches left in the food entering the stomach before the secretion of diluted hydrochloric acid begins, which is about one hour after eating, and by the time the stomach's secretions would destroy the diastase it has accomplished its work and is out of the way. This patient has made a steady gain, which began at once.

The following case is the last, and to me the most interesting, I have had the pleasure of trying this remedy in:

CASE IV.—J. Lathrop Boyd, Esq., my own brother, forty years of age, and prominent in legal circles of the State of Michigan. He has been a sufferer from obstinate stomach trouble since childhood. When a small boy his extreme suffering used to awaken the keenest sympathy and solicitude of the whole family. Everything was done we knew of to relieve him, but with no more than very temporary results. He passed through his boyhood, schooldays, and on up to manhood and professional life with success, but always against the tide. This everlasting pain and burning seemed to hang like an incubus over him. He saw different specialists upon the stomach; none of them could determine anything more than functional difficulty as the cause of his trouble, but nothing they did cured him. Four years ago hemorrhoids developed, for which I operated upon him here in St. Louis, and for a time he seemed better, returning home greatly improved. But the arduous duties of an active law practise soon brought him down again,

and for the last three years he has suffered very much indeed. Some weeks ago he again came under my personal care, at which time he was taking large quantities of soda bicarbonate and common salt in solution, which he stated was the only thing that would relieve the burning. I immediately stopped these, and for the extreme torpor of the bowels from which he had suffered so long I put him on aloin, belladonna, nux vomica, and cascara tablets, one each evening, and powdered Taka-Diastase three grains while eating three times a day, and in two hours after meals ten grains of lactopeptine.

This plan of treatment has seemed to meet the exigencies of his case in a remarkable manner, and he now promises more toward ultimate recovery than ever before.

I think the great good to be derived from Taka-Diastase will suggest itself to any thoughtful physician who has had experience with these intractable cases; its use will surely open up a better knowledge of the function of digestion.

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#### THE CONSERVATIVE TREATMENT AND THERAPEUTICS OF FALLOPIAN- TUBE DISEASE.\*

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BY THOMAS MORE MADDEN, M.D., F.R.C.S.E., M.A.O.,  
*Honoris Causa* Royal University; Obstetric Physician and  
Gynecologist Mater Misericordiae Hospital,  
Dublin, etc., etc.

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In dealing with cases of chronic salpingitis leading to serous or purulent effusions in the Fallopian tubes, the most common origin of which is bacterial invasion, consequent either on gonorrhea or on puerperal sepsis, there can be no special reason for departing from the generally recognized first principles of therapeutics. The primary objects of all treatment, whether surgical or medical, are I presume not merely the removal of actual disease, but also the restoration as far as possible of the structural and functional integrity of the affected parts.

Thus, for example, if the mammary gland were the seat of a purulent collection, or if, as the late Sir Spencer Wells suggested, the case before us was one of hydrocele, would it not be more advisable to open the one or tap the other than to ablate the affected gland in either case? Acting therefore on these principles I have for many years, in the first instance at least, treated by conservative

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\* Abstract of a paper read before the British Medical Association at Montreal.

measures such as aspiration, together with administration of mercurials and iodide of potassium, a considerable proportion of the cases of pyo- or hydrosalpinx that have come under my observation.

The successful results that may be thus obtained in many, though by no means in all, cases of this kind have been proved in my wards in the Mater Misericordiæ Hospital. Moreover, a preliminary resort to such measures, even if unsuccessful, will not interfere with the results of subsequent salpingo-oophorectomy if that be then necessitated.

The method of aspirating the tubes referred to may be here briefly described. In the first place, to permit the necessary manipulation, the patient should be put under some anesthetic and placed in the ordinary left lateral gynecological position. Then the operator introduces the index and first fingers of his left hand through the sphincter ani upwards and forwards, along the outlines of the posterior uterine wall, the fundus being pressed down by his assistant's hand over the hypogastrium. In this way the tubes and ovaries can be readily palpated, and if there be any inflammation or cystic enlargement of the former, it may be distinctly recognized as a tortuous, elongated, sausage-shaped or rounded fluctuating tumor, extending from the side of the uterus outwards to the broad ligament and backwards into Douglas's fossa. Having thus ascertained the position of the pyo- or hydrosalpinx, the next step is to carefully introduce *per vaginam* on the point of the right index finger a long, fine needle, affixed to the aspirator, up to the roof of the posterior vaginal cul-de-sac. Through this the needle is to be passed into the retrovaginal fossa, and thence guided by the operator's left index from the rectum up to the most prominent presenting part of the tubal swelling, into which it is to be plunged. The tap of the aspirator is then to be turned, so as to give exit to the contents of the dilated tube, the expulsion of which may be assisted by the steady pressure of the assistant's hand from about the hypogastrium down into the pelvic cavity, and continued until the tube is completely evacuated. After this, the cyst cavity should be washed out with an antiseptic, and the vagina should be rendered aseptic by insufflation with iodoform.

Then, no further local treatment beyond hot carbolic irrigation will generally be required, unless the tube should, as sometimes happens, again fill (though probably to a lesser extent), when the same procedure may

be again repeated; until the oviduct has become reduced to its normal size. This procedure should be accompanied with the exhibition of bichloride of mercury in small and long-continued doses, as for example in the following formula:

℞ Hydrargyri bichloride, gr. i;  
Tinct. cinchona comp., ʒ i.

Sig.: Ten drops well diluted after meals.

*Curetting Fundal Orifice of Tubes: Treatment by Electricity.*—The most common immediate cause of cystic accumulations in cases of chronic salpingitis is mechanical obstruction of the uterine orifice of the oviduct, due either to chronic follicular endometritis, flexion, or, in some instances, supra-involution of the uterus. Under such circumstances the tubal obstruction is most likely to be relieved by dilatation, followed by curetting of the diseased proliferating endometrium in the first instance, or by the rectification of the flexion in the second, and by faradization in the last named cases. The faradic current has, moreover, not only in these, but also in other forms of chronic salpingo-oophoritis, been in some instances successfully employed by Dr. Apostoli of Paris, who generally employs in such cases the faradic current of tension applied in moderate doses, and for only a few minutes at a time, for which he claims the most remarkable curative results. Another recent authority on this subject—Dr. Milne Edwards, of Edinburgh—does not believe, however, that the galvanic current is suited to cases where there is definite organic change in the ovaries, but considers that here faradism may possibly be of service.

In those graver, and somewhat more exceptional than is generally supposed, cases in which, from the extent of Fallopian disease, or from the implication in its course of adjoining structures, the urgency of the symptoms attending its progress, or other causes, it becomes impossible to deal satisfactorily or safely with such cases by the methods already referred to, there then only remains for our adoption the complete removal of the uterine appendages. I have elsewhere discussed this operation, of which I have now had sufficient actual experience to enable me to say that unless occasionally imperative and unavoidable it is by no means so universally satisfactory, either as regards the immediate or the remote condition of the patient operated on, as seems to be commonly believed. Without further discussing this topic on the present occasion, however, I shall now

merely add the question of election or necessity I regard as the cardinal point to be decided in considering the expediency of removing the uterine adnexa in the treatment of Fallopian-tube disease. In many instances unquestionably, as I have already said, that course becomes an unavoidable necessity, and is then the obvious duty of the surgeon. But it should not be forgotten, however, that in probably a no less large number of cases tubal disease may also be successfully treated by some of the less heroic but equally effectual remedial and conservative local measures to which I have now referred. These, it may be added, should be accompanied by the internal administration of bichloride of mercury as before mentioned, or by the exhibition of iodide of potash, together with inunctions of oleate of mercury with morphine over the seat of pain.

#### THE TREATMENT OF EPILEPSY.

The *Journal des Praticiens* of April 17, 1897, points out that there are two chief indications in the treatment of this disease: First, the arrest of the paroxysm itself, and second, the determination of the cause and its removal from the patient. In those cases where there is a warning aura which tells the patient of an oncoming attack it is recommended that some means of compression of the part in which the sensation is developed should be resorted to for the purpose of arresting the upward movement of the aura. Sometimes the forced extension or flexion of the arm or leg in which the sensation is developed will abort the attack, and in other cases compression of the carotid artery will have the same effect. It is pointed out that Charcot has counseled the application of ice to the præcordium of patients who have a cardiac aura.

It is of the greatest importance in the treatment of epileptic patients, particularly if they are children, that everything should be done for the maintenance and improvement of their general health and for the training of their mental condition. For this reason close supervision as to their food should be resorted to, and the greatest variety of substantial nourishing articles of diet should be provided. Where the child is rickety the administration of the lactophosphate of lime is often very valuable. Baths and other forms of hydrotherapy are to be recommended for the purpose of improving the tone of the general system. The urinary

secretion and the action of the bowels should be carefully attended to in order that every avenue for the exit of toxins may be kept in active use; particularly is this important in those cases in which there are marked evidences of digestive disturbances with secondary intoxication. In the way of antispasmodics it is thought that camphor, ether, morphine, and belladonna are the remedies which offer us the greatest power for good in the treatment of these diseases, as they are not apt to disorder the digestion, in the opinion of the writer, to the extent that the bromides disorder it. It is also pointed out that Feré claims good results from the nitrate of silver, while Gowers relies largely upon borax and arsenic. It is also claimed that antipyrin not only tends to act as a sedative, but that it modifies the severity of the attack; and sometimes minute doses of picrotoxin are valuable. Notwithstanding all this it remains a fact that bromides are our most important remedies in the treatment of this spasmodic affection. Usually it is best to use small doses of the bromide of potassium, ammonium, and sodium rather than one salt alone. Thus we can prescribe:

℞ Bromide of potassium,  
Bromide of ammonium,  
Bromide of sodium, of each 6 drachms;  
Water, 1 quart.

Order that four to eight teaspoonfuls of this shall be taken each day. Or the following may be given:

℞ Bromide of potassium, 3 ounces;  
Nitrate of pilocarpine, 1½ grains;  
Syrup of bitter orange, 1 pint;  
Water, 1 pint.

A teaspoonful of this may be given four or five times a day.

#### LEAD POISONING WITH DEATH FROM THE USE OF HEBRA'S OINTMENT.

HAHN has recently reported to the Society of Medicine in Prague a curious case in which a child suffering from eczema of the head was treated for a long time with Hebra's ointment. General convulsions ensued, the skin became very pale, the gums presented the characteristic blue line. The patellar reflexes were exaggerated. Finally the child died. The cause of death was confirmed by an examination of the child's body and an analysis of the urine. — *L'Abeille Médicale*, March 27, 1897.

# The Therapeutic Gazette

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## Leading Articles.

### THE VALUE OF PARACENTESIS PERICARDII.

Progressive physicians are recognizing more and more the fact that effusions into the various serous cavities cannot be satisfactorily removed by the administration of diuretics and purgatives. Even in chronic cases, where there is no necessity for the rapid removal of such effusions, the results rarely justify the exhausting plan of treatment which was so largely resorted to by physicians in the early part of this century. Where the condition of the patient is pressing because of interference with vital functions it is often absolutely necessary for the purpose of saving life to be bold enough to abstract by means of a trocar and cannula, if necessary attached to an aspirating flask, fluid which may be pressing upon the lungs or upon the heart. That paracentesis pericardii is an operation surrounded by far greater difficulties than paracentesis thoracis or paracentesis abdominis is manifest, and those who have had much experience in clinical medicine or in

the performance of this operation have often found it most difficult first to decide positively that the symptoms and physical signs are due to the pericardial effusion and not to dilatation and hypertrophy of the heart. The history of pericarditis, however, the marked increase in the area of cardiac flatness downward to the right and left, the distant and feeble character of the heart sounds, and the evident manifestations of cardiac embarrassment, are at least objective signs which lead the physician to strongly believe that fluid has accumulated in the pericardial sac.

After the difficulties of diagnosis have been put aside the question next arises as to the spot at which paracentesis pericardii is to be performed, and it seems probable that the point of selection is the fifth interspace close to the left border of the sternum, although others have suggested the fourth interspace, and still others that the cannula shall be inserted close to the right border of the sternum in the fifth interspace. The choice of the point for the introduction of the cannula depends very largely, however, upon the physical signs presented by the individual patient, although in the great majority of instances the fifth intercostal space close to the sternum is the area of preference. It having been decided to introduce the cannula in this area, even the most experienced physicians feel timid lest by reason of incorrect diagnosis or other cause they may wound the heart itself; and in some cases they prefer that the patient should die of his disease in the course of a few hours rather than run the chance of saving him on the one hand, or of suddenly ending his life on the other, by puncture of the heart muscle. While there can be no doubt that injuries to the heart muscle are always more or less serious in their possibilities, on the other hand we feel convinced that many physicians have an undue timidity in connection with this possibility. As a matter of fact injuries to the heart muscle itself are not capable of producing any more serious results than puncture or incision of any one of the other muscles in the body, unless the puncture is of such a character as to lacerate or sever a large number of heart fibers or the coronary arteries, thereby interfering with the action of the heart, or unless the puncture tends to strike one of the nervous ganglia in the heart muscle which govern the beating of this viscus. If the latter accident occurs the patient is certain to die, but the probability of this accident taking place must be in the majority of instances decidedly remote. Fur-

ther than this, the insertion of the ordinary trocar and cannula into the pericardium rarely wounds the heart excepting to produce a small punctured wound, which the peculiar crossed arrangement of the muscular fibers in the heart at once closes; and even if the cannula goes so deeply into the heart muscle as to penetrate the cavity of the ventricles and blood is drawn through the cannula, the mesh-like heart fibers immediately close the wound as soon as the cannula is withdrawn. Further than this, unless the cannula is plunged suddenly through the chest-wall and unless the heart is bound down by adhesions to the chest-wall, in the majority of instances the physician will be notified that the tip of his trocar has engaged the heart muscle by the to and fro impulse which is transmitted to the needle of the trocar and cannula by the action of the heart, and the slight withdrawal of the trocar and deflecting it to one side will remove it from the heart muscle and leave its end free in the pericardium, although the heart may still be felt beating against the side of the instrument. Aside from the danger of injuring one of the nervous ganglia of the heart by puncture, the only other danger of wounding the heart muscle lies in the possibility of damaging the wall of the auricle in such a way that free hemorrhage takes place into the pericardium, the patient dying not so much from loss of blood as from distention of the pericardium and consequent pressure upon the heart muscle; for the auricular wall not being so well provided with thick muscular fibers is more easily penetrated, and wounds are by no means so easily closed. That our position in regard to the danger of wounds of the heart muscle is correct is proved by the gradually increasing array of reports in current medical literature concerning cases of stab-wound or other wounds of the heart in which patients permanently recovered or lived for many hours or days after the injury, dying from some secondary affection. One of the most recent of these cases is that which is reported by Williams in the *New York Medical Record* of March 27, in which a man received a stab-wound three-fourths of an inch to the left of the sternum, which penetrated the chest and produced a small punctured wound of the heart about half an inch to the right of the right coronary artery and between two of its lateral branches. In this case, however, there was no hemorrhage from the heart or pericardium, but profuse hemorrhage from the internal mammary vessels. The hemorrhage from these vessels was controlled by

operative procedures and the patient recovered, notwithstanding a sharp attack of pericarditis and pleurisy.

Again, the writer of this editorial has seen paracentesis pericardii attempted in a case in which there was great dilatation of the heart with pericardial adhesions, and it was found that there was no pericardial effusion. The trocar and cannula, however, passed into one of the cardiac cavities and one or two ounces of blood was aspirated into the bottle before the injury to the heart was recognized. On the next day, the symptoms of pericardial effusion being considered still more marked, it was decided to perform the operation a second time, and once again one of the cardiac cavities was tapped and pure blood was withdrawn. In each instance the withdrawal of the blood seemed to relieve the distention and congestion of the heart, and was followed for a number of hours by marked relief to the patient.

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#### THE DANGER OF CHLORATE OF POTASSIUM.

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For many years the medical profession, with but little knowledge of the pathological conditions connected with diphtheritic infection, and with still less information in regard to the influence of chlorate of potassium upon the human body, were in the habit of employing this drug in large quantities in the treatment of diphtheria, some using it because it was supposed to exercise a favorable influence upon the local diphtheritic process, both when it was swallowed and when it was eliminated by means of the salivary glands; others, still more ignorant of its influences, employed it with the ridiculous idea that it was capable of yielding oxygen to the body and so supporting the system; while still others believed that the additional oxygen which it gave forth actually aided in the elimination of the effete products of the disease and thereby enabled the patient to resist its ravages. With our increased knowledge concerning the bacillus of diphtheria and the pathological changes which its toxins produce in the body, this method of treatment became less and less popular, and finally, when the profession grasped the idea that chlorate of potassium was not the innocent drug that it was thought to be, its use in diphtheria became still more limited. We have reason to believe, however, that there are still quite a number of physicians who continue to employ it either as a matter of routine practise or because they

are unaware of its deleterious influences. The literature of medicine will be found to contain as each year goes by more and more cases in which the abuse of this remedy produces poisonous influences in the body, which are recognized to-day, although put down to other causes years ago. The object of this note is to insist upon the fact that the chlorate of potassium is, next to the cyanide of potassium, the most poisonous of the potassium salts. As an instance of this we may quote a case which recently occurred in Vienna, in which a boy of sixteen who was suffering from sore throat was given a gargle consisting entirely of chlorate of potassium. Either because of misunderstanding of the orders or through inadvertence the patient swallowed a considerable amount of the drug and death speedily resulted, the inquest revealing all of the usual signs of death from this substance.

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#### THE PROPER CARDIAC STIMULANTS IN THE PRESENCE OF PERICARDIAL EFFUSION.

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We have often pointed out in the columns of the THERAPEUTIC GAZETTE that the physician must be careful in the administration of remedies to see to it that no pathological condition exists in the body which renders the action of a given medicament useless or even harmful. Our attention has been called to the matter of the administration of cardiac stimulants in the presence of pericardial disease by an able paper which was recently read before the Association of American Physicians during the Congress in Washington in May, 1897, by Dr. Frederick C. Shattuck of Boston. In the course of this paper and its discussion the point was made that digitalis could be given with advantage to patients suffering with pericardial effusion with consequent cardiac failure, but from this view the writer of this editorial distinctly disagreed. Aside from the changes which may take place in the myocardium and in the visceral layer of the pericardium in the course of the various infectious processes which usually produce a pericarditis, certain physical conditions arise which are largely responsible for the very evident cardiac difficulties from which patients often suffer. The chief of these physical causes for impaired heart action in a certain proportion of cases is undoubtedly the large quantity of fluid which has been poured out into the pericardial sac, and which so presses upon the heart

and distends the pericardial sac that the function of the cardiac muscle is only carried out with great difficulty. That the presence of the effusion is the chief factor in the production of faulty heart action under these circumstances is not only proved by ordinary processes of reasoning, but is confirmed by the fact that in those cases in which successful paracentesis of the pericardium has been performed the heart has been very much relieved, for a short time at least, or until the effusion has formed again, and has performed its function with an approach to that found in health.

There is no doubt that cardiac stimulants are of value under these circumstances. The question simply arises as to which one to employ, and of all those in which we have confidence it seems to us that the least favorable is digitalis, simply because the physiological action of this drug is to greatly increase the diastole of the heart, enlarging its cavities, and making it fill the pericardial sac much more completely than it frequently does under normal circumstances. In other words, digitalis, by increasing the dimensions of the heart during diastole, really adds to the difficulties of this viscus, which is already pressed upon by the effusion which is in the pericardial sac. Certainly it seems much more rational to employ in such cases not digitalis but some remedy like strychnine or strophanthus, alcohol or ammonium, which will support the heart, increase the activity of the circulation, and yet not materially alter the space which is required within the pericardial sac for normal cardiac activity.

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#### THE SURGICAL TREATMENT OF CHRONIC GASTRIC ULCER.

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A most valuable paper on this subject is contributed by Mikulicz to the *Berliner Klinische Wochenschrift*, No. 23 to 25, 1897, suggested apparently by von Leube's exhaustive thesis upon the limitations and results of the medicinal treatment of comparatively recent, non-complicated ulcers of the stomach.

Even in these cases operative intervention has been suggested by both physicians and surgeons. In a case of Leucke's the operation was undertaken for the relief of intolerable gastralgia and exhausting dyspepsia. By means of a gastro-enterostomy this patient was cured.

Hitherto, cases which have come to the surgeon have been in such a depressed con-

dition from starvation and bleeding that active intervention of any kind was extremely dangerous. None the less the results have been surprisingly good. They would doubtless be much better were operation undertaken at an earlier period.

In considering the advisability of operation for non-complicated ulceration of the stomach the surgeon should give due weight to the danger of operation and should be assured that by the use of the knife the patient can be decidedly benefited. Unfortunately, statistics do not enable us to judge accurately as to the mortality of gastric ulcer not subject to operation. The mortality figures vary from five to thirty per cent. It is fair to conclude from the result of autopsies that three-fourths of all gastric ulcers heal spontaneously. Many of these cases, however, ultimately die because of stenosis from cicatricial contraction, or from phthisis greatly aggravated by the ulcer, or from malignant disease.

Gerhard states that in from three to five per cent. of cases death occurs from hemorrhage; in thirteen per cent. from perforation; in ten per cent. from stenosis of the pylorus.

Debove and Raymond give a mortality of fifty per cent. In 100 cases they find that death occurred from tuberculosis in twenty, from peritonitis in thirteen, bleeding in five, inanition in five, and other complications in seven.

Mikulicz holds that when all complications are considered the mortality will range between twenty-five and thirty per cent. He believes that surgical intervention is always indicated when internal treatment proves unavailing.

As to the mortality of operation: Of 238 cases of pyloric stenosis and gastric ulcer without serious complication operated on in the clinics of Billroth, Czerny, and Mikulicz, there was a mortality of 21.8 per cent. The operations performed were resections of the stomach, gastro-enterostomy, and pyloroplasty. The mortality of the resection cases was greater than that of those subjected to gastro-enterostomy and pyloroplasty. It is worthy of note that defects in technique are rarely the cause of death, but rather this is attributable to the extremely reduced condition of patients.

It may be said as a result of this statistical study that the danger to which a patient with an open uncomplicated ulcer of the stomach is exposed is decidedly greater than the danger which he would run if subject to a well-directed operation.

When medicinal treatment has failed opera-

tion is imperatively demanded. Surgeons heretofore operated mainly for the relief of the pyloric stenosis, whether this was due to a cicatrix of an old ulcer or was associated with an open sore. It is proved beyond controversy that relief of the stenosis is followed by healing of the ulcer, the stomach completely recovering its motor and secretory functions in a few months at most. These patients gain rapidly in weight and strength and become completely able-bodied. A similar success attends the operations on ulcers not complicated by stenosis. Küster's two cases in which intervention was required because of bleeding recovered very promptly, as did two patients operated on by Mikulicz.

Gastro-enterostomy is credited with having healed a number of discharging gastric ulcers, but to this operation Mikulicz greatly prefers pyloroplasty. He found in a number of cases the pylorus greatly narrowed, not from cicatricial contraction, but from tetanic spasm of the muscular fibers. In two cases the ulcer was first excised and the fresh surface covered by mucous membrane, which was sutured over it, after which pyloroplasty was performed. In the four cases operated on the quantity of hydrochloric acid markedly diminished. Before operation it was double the normal, but rapidly lessened; in two cases it was normal within five months.

It is evident, then, that gastric ulcer can be cured by surgical intervention without attacking the lesion directly, but by making the rapid and complete emptying of the stomach into the duodenum possible; whether the narrowing be due to scar tissue or to muscular contraction, pyloroplasty is equally indicated. As to the choice of operation, resection of the pylorus and a portion of the stomach is by all odds the most dangerous and least authorized method of radical cure. Circular resection should be abandoned in cases of ulcer, unless there is a suspicion of carcinoma. The author has observed five such suspicious cases, in which he performed the operation.

As to the choice between gastro-enterostomy and pyloroplasty in the treatment of open gastric ulcer, since both accomplish rapid and complete emptying of the stomach-contents into the bowel, the preference should be given to that which is easier and least dangerous. Hence pyloroplasty is distinctly to be preferred. It is not indicated in all cases, however. Thus, if the pylorus is fixed or if its walls are densely infiltrated the operation will be extremely difficult.

As to the technique of the operation, the anterior wall of the stomach and duodenum should be incised to the length of two to two and a half inches. The suture of this wound at right angles to its length makes a wide communication and one which facilitates the physiological evacuation of the gastric contents.

This cannot be said of gastro-enterostomy, following which there may be only established a vicious circle, the stomach-contents passing into the bowel and thence toward the pyloric valve rather than away from it, and returning to the stomach. That this has actually occurred is shown by autopsy, a spur-formation preventing the ingested matter from passing into the ileum. There is no certain way of preventing this spur. This vicious circle Mikulicz attributes to muscular spasm rather than to spur-formation. In one case reported by the author in which this spur-formation was attended by intractable vomiting, a second abdominal section was performed and entero-anastomosis was established in a distended loop of bowel between the seat of gastro-enterostomy and the pylorus and a loop of gut below this point. This method of procedure is the only certain one by which the vicious circle may be prevented. When at the time of operation the stomach is found markedly atonic, gastro-enterotomy should, as a rule, be supplemented by this second operation.

The surgical complication of gastric ulcer which has been most frequently subject to operation is pyloric stenosis. The indications for operation and the technique are well known. Another complication requiring operation is adhesion of the base of the ulcer with the parietes or surrounding organs. Loose adhesions usually cause a chronic mild perigastritis—sometimes violent gastralgia.

The diagnosis between simple gastralgia and gastric ulcer is extremely difficult. Operation and freeing of adhesions cause in these cases complete relief of pain.

Cases in which after adhesions to the parietes the ulcer gradually penetrates are readily recognized. A hard tumor is formed which can be readily mistaken for carcinoma. It is usually associated with symptoms of ulcer, and the pain is extremely violent and is greatly increased by palpation of the swelling. Operation is absolutely indicated in these cases. The ulcer, together with the infiltrated portion of the belly-wall, should be resected and the resulting wounds closed

by suture. Usually the stomach can be dropped back into the abdominal cavity. Of the eight cases collected by the author all were successful.

The most serious complication of gastric ulcer is perforation. From 1885 to 1894 thirty-five cases were operated on, with thirty-four deaths, a mortality of over ninety-seven per cent. From 1894 to 1896 sixty-eight cases were operated on, with thirty-six deaths, a mortality of about fifty-three per cent.

The prognosis in these cases depends upon whether the stomach was full or empty. Hence it follows that when perforation is feared nothing should be given by the mouth. Statistics show that cases of cure are four times as numerous when operation is performed in the first twelve hours as when it is postponed. The wisdom of the policy of waiting until the first shock has passed by before resorting to operative intervention is open to grave doubt. This shock is extremely likely to run on to fatal collapse. About eighty per cent. of perforating ulcers are placed in the anterior belly-wall, hence are accessible. Some are so placed that they cannot be reached, at times cannot even be found. None the less, cure has resulted from peritoneal tampon drainage.

As to treatment, excision is not necessary unless the ulcer is so placed that the procedure is extremely easy. The rent should be closed by suture. Often even this is not possible, either from location of the ulcer or because of the brittleness of the tissues due to inflammatory infiltration. In the latter case a portion of the omentum may be set over the rupture, or this can be closed by a sack of iodoform gauze.

In addition to the acute peritonitis set up by sudden perforation, there is a chronic peritonitis beginning as perigastritis, due probably to a very small opening closed by adhesions with neighboring parts. These adhesions gradually yield and a fibrino-purulent progressive peritonitis develops, at first confined to the region of the stomach, finally spreading through the entire subphrenic portion of the peritoneum. The diagnosis of this condition is difficult. The slighter cases heal spontaneously. The operation is likely to be extremely difficult.

Probably the most frequent complication of gastric ulcer is bleeding. When a large arterial branch is eroded a search should be made for it. In but two cases this search has been successful; one of these was treated by



the author. In three other cases operation was performed for the relief of bleeding. Because of inflammatory infiltration, checking of bleeding by ligation was impossible, hence the thermo-cautery was used. In case of hemorrhage the ulcer is usually placed in positions unfavorable for intervention. Only a very large vessel is liable to lead to life-threatening bleeding, and this is generally a vessel in the substance of the pancreas. A number of cases are recorded in which it was found impossible to find the seat of the ulcer. While the advisability of operation may be fairly questioned in case of sudden violent bleeding because of difficulty in diagnosis and difficulty in finding and securing the vessel when the ulcer bleeds repeatedly for a few weeks and months, there can be no question as to the desirability of operating.

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## Reports on Therapeutic Progress

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### *THE TREATMENT OF INGROWING AND INGROWN TOE-NAILS.*

In the *New York Medical Journal* of March 20, 1897, J. L. ANDREWS contributes an article on this practical subject. He first gives a definition of what we mean by an ingrowing toe-nail, and says it is a condition in which one or both sides of the great toe-nail seem to grow downward and press into the soft parts to an extent sufficient to cause pain on pressure, and more or less discomfort while walking. This condition is considered by some to be always due to a rolling upwards of the soft parts over the side of the nail, rather than an actual deformity of the latter.

As a matter of fact we see both conditions, and it is important to distinguish between them before giving a prognosis or selecting a line of treatment.

Where the soft parts are primarily at fault we may promise our patient a permanent cure, without operation, if our directions are carefully followed. Sometimes it will be only necessary to order a proper shoe. This shoe should have a low, broad heel, to prevent a wedging forward of the foot while walking. The inner side should be straight, to prevent pressure on the corresponding side of the nail. The toe should be sufficiently broad and extend far enough beyond the end of the foot to prevent pressure on the outer side from above and in front. If this is not sufficient, pack a small amount of cotton under the edge of the nail to protect the soft parts, and apply a strip of rubber adhesive

plaster diagonally around the toe, in such a manner that the soft parts shall be drawn away from the nail without direct pressure over the latter. For this purpose a semi-lunar-shaped piece of plaster is often better than a straight strip. It should be applied with the convexity forward, one horn beginning just behind the nail on the affected side. This will allow the belly to catch the offending soft parts, while the rest of the piece is carried around the plantar surface of the toe and over the dorsum, crossing the first end. This dressing should be changed every three or four days.

In the first class, where the nail is really deformed, this plan is of very much less value. But many cases will be held in abeyance if we attend to the shoe, apply a cotton protection under the edge of the nail, encourage it to grow out beyond the soft parts, and keep them clean. However, this will sometimes fail, and the nail will become really ingrown. Neglected cases of both varieties almost invariably reach this stage, and this explains why, in dispensary practise, we nearly always see the latter variety.

Here there is always more or less hyperplasia of the soft parts, which are rolled up over the side of the nail in amount usually proportionate to the length of time the trouble has existed, and the amount of irritation present. Next to the nail there is a mass of granulation, discharging more or less pus. In nearly all these cases our treatment must be operative if we effect a cure, and in all of them it will be found the most humane procedure.

A modification of the method devised by Anger seems to fulfil the indications more perfectly than any other. He removes a wedge-shaped piece, including the offending side of the nail, all of the granulation tissue, and more or less of the hyperplastic soft parts. This leaves a flap with which to cover the raw surface. Anger secured the flap with adhesive plaster, put the patients to bed for a week, and did not let them walk for ten or twelve days. By the method about to be described the patients walk immediately, do not go to bed, and are generally discharged cured in from ten to fourteen days.

The success and comfort of the operation depend almost entirely upon little points of technique, and the writer gives them in detail:

The toes and foot are first scrubbed with soap and water, followed by a solution of bi-chloride of mercury (1:1000). For anesthetic

sia, ten to fifteen minims of a two-per-cent. solution of cocaine hydrochlorate is sufficient if distributed in the following manner: Introduce the hypodermic needle from before backward, just under the part of the nail to be removed; as soon as the skin is pierced inject a drop or two, and wait a moment before pushing it further; repeat the process until the root of the nail is reached. Withdraw the needle now, and, beginning near the primary puncture, distribute a few drops in the skin and soft parts along the outer side of the nail, nearly as far backward as the first joint. In this way the only pain felt is while the primary puncture is being made, and even that may be done away with by spraying with ethyl chloride or ether.

Next wind a small rubber tube around the base of the toe, to prevent blood from interfering with our work. Before making an incision swab the whole granular area thoroughly with pure carbolic acid, working it well down under the edge of the nail. Failure to do this will often cause infection and delayed union.

The first incision begins anteriorly somewhat beyond the edge of the nail, and is carried directly backward (separating a sufficient amount of the side of the latter) to a point a fourth of an inch behind the true matrix. This is deepened through the underlying soft parts, well down by the side of the phalanx.

The second incision begins anteriorly at the same point as the first, and curves outward and backward to join the posterior end of the primary incision. This is deepened through the soft parts around the outside of the nail until we reach the lowest part of the first incision.

Remove the wedge thus set free and search the posterior part of the wound carefully, so that no part of the corner of the nail or matrix shall be left. If we leave a piece of nail, immediate trouble will ensue; if only the matrix is left, another ingrowing nail will make its appearance in a few weeks.

If properly fashioned, the flap which we have will fit the opposite raw surface perfectly, and should be secured by one or two catgut sutures in front of the nail and the same number behind. Before removing the rubber band apply a moderately thick pad of gauze over the flap and bind it tightly to the toe with a few turns of gauze bandage. Now remove the rubber tube and complete the dressing.

The patients walk home, and although

there is often some pain the first night it does not last longer, and they keep about with little discomfort. The dressing should not be changed in less than a week, unless there is some indication, and at the end of ten days or two weeks the cure will usually be complete.

The "Cotting" operation has, perhaps, been more frequently used in this class of cases than any other, and it has two strong points: it is very easy to do, and the ultimate results are nearly always good. In point of time it suffers in comparison, as the healing process requires from three to ten weeks. Another objection to it is the often painful process of changing the dressings every two or three days.

The second class of ingrown toe-nails, fortunately rare, will take but little of our time. Here the suppurative process has existed for a long time, and we have on either side and in front extensive hyperplasia, sometimes enough to almost bury the nail from sight. The nail is also lifted more or less from its bed, sometimes nearly as far back as the true matrix. The suffering is exquisite, and it is often impossible to wear any kind of a shoe.

A flap operation is here out of the question; the proximity of a suppurating surface which we must leave will defeat almost any attempt at primary union that we may make. Instead, we should pare off the hypertrophied parts on either side as in the "Cotting" operation. In front the part should also be trimmed down to the level of the bed of the nail.

In dealing with the nail itself we should be guided by the conditions present. If it is loosened nearly to the matrix, it would be better to pull it out and pack the socket with gauze; if the latter precaution is not taken the new nail will find contracted quarters when it comes out. Where the anterior and lateral parts of the nail are separated for only a moderate distance, the free part should be trimmed off to prevent the collection of pus. In these cases the healing process usually requires from four to twelve weeks.

#### A RESEARCH UPON ANESTHESIA.

In the *Journal of Experimental Medicine* for March, 1897, WOOD and CARTER publish the results of a research and conclude:

1. Lowered arterial pressure has a comparatively feeble effect upon the respiration, but when the pressure falls sufficiently, respiratory depression does occur.

2. Even excessive lowering of blood-pressure primarily stimulates the vaso-motor center, the sensibility of the center being evidently necessary to the automatic regulation of the circulation.

3. The circulation recovers itself more slowly after profound etherization than after a like chloroform narcosis.

4. It is possible for ether as well as chloroform to produce death some hours after the cessation of its administration, at a time when the cerebrum has long freed itself from distinct evidences of the narcotic, so that consciousness and intellectual action have been restored.

In applying these conclusions to the subject of practical anesthesia it is evident that the depression of the circulation produced by chloroform has effect upon the respiratory centers only when the pressure has fallen very low; and whilst it may be a factor in the production of respiratory failure during chloroformization, the failure must be chiefly due to the direct influence exercised by the drug upon the respiratory centers.

Clinical experience shows that nausea and general depression are more pronounced after the use of ether than after the use of chloroform, a difference which is strongly insisted upon by the advocates of chloroform as an important agent in favor of that anesthetic. Our research confirms clinical observation, and experimentally shows that the depression of the circulation produced by ether is more permanent than that caused by chloroform, the reason probably being the large amount of ether which is necessary to produce profound narcosis, with lowering of the arterial pressure,—an amount so large that it can neither be burned up in the system nor yet eliminated in the time which would be necessary for the much smaller amount of chloroform to be gotten rid of after chloroformization.

#### *DANGERS OF ANTIPYRIN IN ERYSIPELAS.*

In *L'Abeille Médicale* of March 27, 1897, it is pointed out by SPANOUDIS of Port Said that persons suffering from erysipelas seem to be peculiarly susceptible to antipyrin. It usually causes anuria and a profound fall of temperature, which have needed the administration subcutaneously of caffeine, and hot applications. As this has happened more than once to Spanoudis he believes that erysipelas is one of the infectious diseases in which antipyrin is contraindicated.

#### *INTERSTITIAL INJECTIONS OF METHYLENE BLUE IN EPITHELIOMA OF THE FACE.*

In the *Normandie Médicale* of April 1 M. DUBARRY relates the following case: The patient, a woman fifty-seven years old, stated that eighteen years before she had noticed a pimple of about the size of a pin's head on the right side of the chin. For ten years it had remained in about the same condition. She had never been alarmed until one day when, on scratching the spot, which had itched for some time, she provoked a hemorrhage that lasted for four hours. She then consulted her physician, who advised a little operation, but the idea of an operation frightened her, and she allowed seven years to pass before again consulting a physician. During the last two years of this period the disease had greatly increased, and the pimple had attained the size of a fifty-centime piece; the itching also had become more frequent and persistent, and the spot often bled, especially when the patient removed the scabs which covered it. An operation was again advised, but as there was no suffering the patient would not submit to surgical intervention. A year later the tumor had spread so rapidly that she decided to seek the advice of another physician, who, in view of the extent of the disease, strongly urged upon her the necessity of an operation; but she resolved not to have it done. Two years more passed, during which time the disease had progressed so rapidly that she became alarmed, and again sought the advice of a fourth physician.

At this time the scabby surface of the epithelioma occupied the entire right side of the chin from the hollow as far as the middle of the horizontal ramus of the maxilla; vertically, it extended beyond the fold of the lower lip, and beyond the body of the maxilla. The surrounding tissue was red, hard, and edematous, and the lip was much thicker on the diseased side. The tumor was divided into four lobes, each one of which was covered with bloody scabs. When the author tried to separate them a rather large quantity of bloody pus was discharged; he found also that the tumor was adherent to the periosteum of the maxilla.

An operation was urgent, but owing to the cowardice of the patient and the great loss of skin which would have resulted, and which would have been difficult to replace, the author resolved to try interstitial injections of methylene blue, although without any hope

of success. He used a ten-per-cent. solution in distilled water, and during the first applications he injected as much as thirty grains. Each time he saturated the entire diseased surface, pushing the needle as deep as possible until it touched the periosteum, and throwing the liquid in all directions. This was repeated as often as necessary. The tumor and all the red tissue surrounding it became of a bluish color. Several times hemorrhages were provoked, but they were not alarming or of long duration, and a slight compression rapidly arrested them.

After the first application the intense itching completely disappeared. During the first three months the author practised an injection regularly every two days, the average quantity of liquid injected being fifteen grains. After a month of this treatment the tumor noticeably diminished in size. After the third month it had diminished one-half; cicatrization occurred from the periphery toward the center. As recovery approached a more considerable resistance was felt; the tissues became more compact and denser. During the fourth and fifth months of the treatment only one or two injections a week were practised; the quantity of liquid used was also diminished in proportion as recovery advanced, and during this stage not more than two or three divisions of a Pravaz syringe were filled for the injection.

In the beginning of this treatment, when the quantity of liquid injected was very large, the urine became of a decided blue color, which disappeared gradually, and it was sometimes twenty-four hours after the injection was practised before the urine regained its normal appearance. At no time did the patient feel pain in the kidneys or experience trouble on micturition. In June, 1896, the treatment was stopped, five months after the first injections. In February, 1897, there was a firm cicatrix on the spot where the epithelioma had been, which was crossed in all directions by fibrous bands which were very resistant to the finger and adhered to the maxilla. The cicatrix was scarcely larger than a two-franc piece.

With regard to a complete recovery, the author states that up to the present time all the indications lead him to think that recovery will be permanent. Even if a relapse should occur, the same treatment may be resorted to again.

Methylene blue, says the author, seems to possess peculiar properties which are capable of making a profound change in the diseased

cell or in the microbe which produces this affection. He is convinced that this mode of treatment will render great service not only in superficial cancrs, but in the deep cancerous affections, notably of the face; provided, however, the diseased spot can be put in contact with the medicament. Each diseased element should be saturated with this therapeutic agent until the noxious principle is profoundly charged with it.—*New York Medical Journal*, May 1, 1897.

#### THE THERAPEUTICS OF METHYLENE BLUE.

The *Medical Record* in its issue of April 24, 1897, speaks editorially upon this subject, and points out that until comparatively recent times blue pyoktanin was known as a local and general remedy in the treatment of inoperable malignant growths. Our readers are familiar with the varying success in carcinoma and sarcoma which has followed the use of this remedy as well as methyl violet in the hands of different observers since Mosetig in 1890 first advocated its employment.

Among the many diseases in which pure methylene blue has been more or less largely employed as an internal remedy may be mentioned acute and chronic Bright's disease, gastric hyperacidity, malaria, headache, diphtheria, cystitis, and gonorrhea. In the first Netchaieff, among others, has reported favorable results, even to the disappearance of albumen and hyaline casts from the urine, along with general improvement in various directions. Berthier has stated that it may be given with advantage in indigestion attended with pain, vomiting, and hyperacidity; the dose recommended is from one to three grains daily for several days, followed by a few days of rest, when it is to be resumed. Conflicting reports have been made upon the value of the drug in malarial affections by Guttman, Ehrlich, Muehl, Lava, Mya, and others. In many instances it has seemed to act very beneficially, while in others it has failed. Lewy recently claimed in the *Berliner Klinische Wochenschrift* that marked relief follows its administration in various forms of headache, especially angiospastic migraine, nervous cephalalgias, and especially the head pains of neurasthenia. The relief is not alone temporary, but in many instances lasting. Ten doses of one and one-half grains each usually sufficed for a cure.

In diphtheria the use of the remedy either

as a local application or internally has seemed to be overshadowed by antitoxin and other methods of treatment. Recently several observers have advocated the remedy in acute gonorrhea, and Moore (*British Medical Journal*, January 16) has seen it cut short the acute stage and decrease the suffering. Allen has reported great improvement in some instances of chronic cystitis, and this in spite of the fact that several observers have noted strangury when the drug has been pushed; and Mya as well as Lewy advise powdered nutmeg to be given at the same time to prevent bladder irritation. The usual dose is one decigramme or one and one-half grains in capsule once, twice, or thrice daily. The urine becomes blue or greenish within five hours of the initial dose, and remains so for several days after the last dose has been given. It must be remembered that toxic symptoms may be produced, and in all instances it is well to give it in tentative dose until the patient's susceptibilities are tried. Methyl violet and impure pyoktanin are most apt to cause vomiting or other disagreeable symptoms.

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*ZITTMANN'S TREATMENT BY HOT AIR  
AND DECOCTIONS IN SYPHILIS.*

In *Treatment* of April 8, 1897, COOPER contributes an article on this topic. He states that he has met at various times in his practise a certain number of cases of tertiary syphilitic ulceration which ran a very rapid course, the destruction of tissue being produced by phagedenic inflammation. This phagedenic inflammation cannot in the writer's opinion be deemed as solely due to the syphilitic poison, and it is very probable that other factors contribute to its production. Thus, given an individual who has contracted syphilis, and whose general health is destroyed by alcoholism, by tuberculosis, by malaria, or by any other cause, these are the cases in which we may expect tertiary ulceration to supervene, and in which this ulceration is more likely to take on phagedenic action.

After a large experience in this class of cases the author has come to the conclusion that the syphilitic element, although producing the primary ulcerative process, is not a very strong factor in the phagedena, for if this were so we ought to expect the administration of mercury or the iodides *secundum artem* to produce a rapid amelioration of the symptoms. But this is not so; on the contrary it will generally be found that the exhibition of these drugs, either singly or in

combination, has not only no effect in staying the ravages of the process, but will greatly increase the destruction of tissue. Nay, the author goes further than this, and states that even after the phagedenic ulceration is stayed and healing has taken place, the administration of antisyphilitic remedies may reproduce the symptoms. He has seen this occur over and over again, and particularly wishes to emphasize this point.

The phagedenic process may occur at any part which is the seat of tertiary ulceration, the destruction of tissue taking place very rapidly, a few days frequently sufficing for the total destruction of the nose or the penis, should either of these parts happen to be the seat of the disease. It behooves us therefore to be very prompt with our treatment, in order that this deplorable condition of affairs may not result.

The nose is a very favorite organ to be attacked, and this may be partly due to a deficient circulation in that organ when exposed to cold.

Where the phagedena attacks the penis, the body, or the limbs, and the face remains free, one of the best modes of treatment consists in the continual warm-bath treatment; but where the nose is affected this method is obviously inapplicable. When this organ is attacked it is most necessary to have at our hands a method of treatment which will rapidly cut short the process, as if it progresses the results from an artistic point of view only are most deplorable, for unless the condition is recognized early, and efficiently treated, total destruction of the soft and bony parts of the nose will very rapidly ensue, and there can be no more disgusting sight than a noseless man, unless indeed it be a noseless woman, for even the most successful plastic operation can never gloss over the defect.

The writer has for some years been in the habit of prescribing in these cases a course of Zittmann's treatment, and in his opinion it is the very best remedy we have at our command for arresting the rapid destructive process of syphilitic phagedena. Under this course the destruction of tissue is rapidly stayed, the wound becomes healthy, and cicatrization of it promptly follows. As the writer has now seen and treated by this method a very large number of cases, he is desirous of placing the results of his experience upon record, hoping they may be of some benefit and service to those who may happen to have cases of a like nature.

The Zittmann treatment consists in keeping the patient in a room at 80° F. and administering certain decoctions according to a prescribed rule. For the reason that he finds a large number of practitioners have difficulty in discovering the really correct method of using this remedy—for this means of treatment is unfortunately generally ignored in surgical text-books, as well as in monographs dealing with syphilis—he appends the details as described in his work on Syphilis.

The course of treatment extends to a fortnight, during which time the patient is put upon a strict diet and regimen. The decoctions and pills are made from the following formula:

#### ZITTMANN'S DECOCTION NO. 1.

℞ Rad. sarsæ. cont., 3 iv;  
Sem. anisi,  
Sem. Fœniculi, 22 3 j, 9 j;  
Fol. senna, 3 j;  
Rad. glycyrrh. contus., 3 iv.

And in a linen bag:

Sacchar. alb.,  
Alum. sulph., 22 3 j;  
Hydrarg. subchlor., 3 j, 9 j;  
Hydrarg. bisulph. rub., 9 j;  
Aque Cong., O vj.

Boil gently down to one gallon, strain, and put into four forty-ounce bottles. Label "The Strong Decoction."

#### ZITTMANN'S DECOCTION NO. 2.

To the dregs from No. 1 decoction add:

Rad. sarsæ. cont., 3 ij;  
Cort. lemon.,  
Sem. cardam.,  
Rad. glycyrrh., 22 3 j;  
Aque Cong., O vj.

Boil gently down to one gallon, strain, and put into four forty-ounce bottles. Label "The Weak Decoction."

℞ Hydrarg. subchlor., gr. ij;  
Ext. coloc. co., gr. v;  
Ext. hyoscyami, gr. ij.

Ft. pil. ij. Label "The Pills."

The patient is kept in a room at 80° F. The diet consists of: Breakfast—Boiled egg or bacon, tea; no sugar or spices. Lunch—Butcher's meat, vegetables; no fruit. Dinner—Soup, fish, poultry.

The evening before beginning the treatment the two pills are taken, and the next four days, at 9 A.M., 10 A.M., 11 A.M., and 12 M., half a pint of the strong decoction drunk very hot. At 3 P.M., 4 P.M., 5 P.M., and 6 P.M., half a pint of the weak decoction cold.

The patient is kept in bed, except for one hour every evening. On the fifth day he is allowed to get up; he may have a hot bath, and dress, and is allowed, if he asks for it, a little brandy or whiskey and soda.

In the evening two pills are administered, the patient starting the decoctions the next day as before. So the treatment goes on until the fifteenth day, when it is discontinued.

The following case illustrates the points which Cooper desires to insist upon, viz., that antisypilitic remedies do more harm than good; that when healing has taken place their administration may cause a relapse; and lastly, that in Zittmann's course of treatment we have a very efficient method of staying the phagedena.

Mr. C., aged thirty-one, was under the care of Mr. Huxley for extensive tertiary ulceration. The ulcers were scattered over the body, scalp, limbs, and penis. The penis became the seat of phagedena, and Mr. Butlin was called in. Later on the writer was asked to see the patient with Mr. Huxley. The patient first noticed ulcerations on April 3, 1894, and he consulted Mr. Huxley April 10. Patient went into a nursing home, but in spite of treatment the ulcerations showed no signs of healing, but gradually grew worse. He was treated with tonics and one grain of mercury with chalk three times a day.

The phagedena rapidly spread and destroyed the body of penis. On May 19, 1894, he was first seen by Cooper, and continuous warm-bath treatment commenced. When out of the bath tartrate of iron lotion was applied to the phagedena sores. Cod-liver oil was given internally. All mercury and iodides were stopped. Under this treatment the patient grew gradually better, and the sores healed, so that on July 6 he was able to go to Margate under the care of Mr. Treves. About the middle of July patient was given a mixture containing iron and perchloride of mercury.

Very soon after this the nose broke down, and by the middle of August all the other sores had broken down. The mercury was discontinued, and Fowler's solution substituted. The nose healed up by September 29, but broke down on October 6. Perchloride of mercury was again prescribed, which was taken until November 20, when patient left Margate and came back to Mr. Huxley, who asked the writer to see him; the latter found the whole of the soft parts of the nose and the cartilages of the alæ were destroyed. All the other sores had broken down, and the ulceration was rapidly spreading. He ordered him to go immediately into a Home, and have a course of Zitt-

mann. Accordingly on November 22 the Zittmann treatment was commenced. The wounds gradually took on healthy action, and by the end of the fifteen days' course were well on the road to healing.

On December 13 the ulceration of nose was looking healthy. Skin-grafting was performed.

January 2, 1895, patient left for his home; all places quite healed.

The author saw patient in February, 1895. All wounds still healed; so he suggested a plastic operation for the nose, which was done by Mr. Bloxam, and proved very successful. At the present time (March, 1897) the patient is perfectly well, and has no sign of any return of his trouble.

#### PARALYSIS AFTER CHLOROFORM.

TASSE has recorded two cases personally observed by him, in which paralysis followed chloroform narcosis. He believes that such paralysis arises from several causes: First, from the position in which the patient is lying, whereby pressure is exercised upon a supplying nerve, or as a result of tractions on the arm or leg of a violent nature. Second, the employment of impure chloroform, which seems capable of poisoning the nervous system and producing such paralysis, at the same time developing transient or permanent albuminuria. He also believes that in some rare instances the chloroform renders the patient susceptible to microbic intoxication, with secondary paralysis from this cause.

#### SOMATOSE IN THE TREATMENT OF PERSISTENT VOMITING OF PREGNANCY OR AFTER ANESTHESIA.

In the *Journal de Médecine de Paris* of April 18, 1897, LUTAUD records his experience with somatose in the treatment of these conditions, first calling to mind the fact that somatose is not a medicament but is intended for nutritive purposes. Thus in one case a woman at the fourth month of pregnancy vomited with such persistence that grave emaciation and exhaustion came on, and it was thought that it would be necessary to bring on labor. Nothing remained on the stomach, and finally nutritive and rectal injections were resorted to and artificial serum was also given. At this time the idea occurred to the writer to use somatose. At first a small teaspoonful diluted with a small quantity of water was well borne,

and gradually the quantity was augmented until after a week four teaspoonfuls of somatose could be taken. Vomiting stopped, the stomach began to be able to retain various liquids, and finally it was possible to administer milk, cocoa, and various soups which had been fortified by the addition of somatose. He then details four other cases of a somewhat similar character, concluding with one in which there was grave anemia following loss of blood due to metrorrhagia and traumatic hemorrhage. Lutaud believes that this form of nutrition is valuable in many of these cases.

#### THE VALUE OF DOVER'S POWDER.

In the *Journal des Praticiens* for April, 1897, is an article by LIEGOIS upon Dover's powder. He first points out that this substance will very frequently relieve the pains, and cure, at least for a considerable period of time, muscular rheumatism; the doses varying from five to ten grains for this purpose. Many years ago French physicians were in the habit of administering from one to two grains of this powder to children of four to six years who were suffering from subacute articular rheumatism. He also believes that it is a remedy capable of doing very great good in measles and scarlet fever, since by the perspiration which it induces it aids in the development of the rash, and quiets the fever and nervous agitation. In certain cases it is well to administer it with sulphur. Thus a prescription may be written containing Dover's powder and washed sulphur, of each two or three grains. This will tend to move the bowels and will also exercise a favorable influence upon any catarrhal process which may be present in the body. In cases of influenza Liegois believes that Dover's powder is exceedingly useful in relieving the pain and inflammation of larynx and bronchi, the pain in the limbs, and many of the other characteristic concomitant symptoms. As a rule it is sufficient to administer two to three grains of the Dover's powder three times a day. Sometimes the following prescription is advisable:

℞ Dover's powder,  
Sulphate of quinine, of each 2 to 4 grains;  
Powdered hyoscyamus leaves,  $\frac{1}{4}$  grain.

Make into a pill or cachet and administer one or two each day.

In case of pulmonary congestion complicating the eruptive fevers the internal administration of small doses of Dover's powder is very beneficial. Again, in certain

cases of diarrhea in adults or children, particularly if they have been exposed to heat, the combination of Dover's powder and mercury with chalk is useful. Thus we may prescribe Dover's powder one grain, mercury with chalk one grain, and extract of rhubarb one or two grains. A pill containing these quantities of these ingredients may be given three or four or more times a day. In diarrhea dependent upon tubercular enteritis cachets containing the following prescription may be used:

- ℞ Dover's powder,  $2\frac{1}{2}$  drachms;  
Compound chalk powder,  
Calumba powder, of each 5 drachms.

To be made into 60 cachets, and two or three are to be taken each day.

#### FORMALDEHYDE SOLUTION IN THE TREATMENT OF DISEASES OF THE NOSE, EAR, AND LARYNX.

An abstract in the *Revue de Thérapeutique* of April 15, 1897, of an article published in a Russian journal by YATCOUTA describes the results which he has obtained in the treatment of these affections by the use of formaldehyde gas solutions. In the treatment of laryngitis and chronic nasal affections he places a five-per-cent. solution of formalin in a glass carafe and instructs the patient to inhale the vapor which arises therefrom on shaking the vessel. This treatment is carried out two or three times a day and lasts from five to ten minutes. He asserts that in the treatment of acute laryngitis the results are most favorable, a complete cure being arrived at in from seven to twenty-four hours in the sixteen cases in which he tried it. In three cases of acute coryza the condition disappeared in twenty-four hours after the use of three or four douches of a weak formaldehyde solution. He also believes that in catarrh of the Eustachian tube the use by means of a Eustachian catheter of formaldehyde solution is of value. The employment of this treatment produces a sensation of burning and tingling in the nose or in the throat, and sometimes cough. There is also apt to be some irritation of the conjunctiva, with coryza.

#### A PRESCRIPTION FOR ASTHMA.

The *Journal de Médecine de Paris* of April 14, 1897, gives the following prescription:

- ℞ Tincture of opium, 1 drachm;  
Sulphuric ether, 2 drachms.

Fifty drops every half hour until the patient is relieved.

#### THE ANTIGALACTAGOGUE INFLUENCE OF CAMPHOR.

At a recent meeting of the Society of Medicine of Nancy HERRGOTT read a paper upon this topic and remarked that Ténissien found that antipyrin possessed antigalactagogue influence as long ago as 1890. The method which Herrgott employs is to diminish the quantity of the patient's drink, to administer purgatives, and to place over the breast which is to be treated an ointment or liniment of camphor. When antipyrin is used for this purpose ten- to fifteen-grain doses twice or three times a day are needed, but Herrgott asserts that this use of antipyrin has never given him favorable results, although he admits that the danger is not as great as one would suppose. The camphor may also be given internally in the dose of one or two grains once, twice, or thrice a day, and it is asserted if the external and internal treatment are both resorted to the decrease in the secretion is quite remarkable.

#### TREATMENT OF SEXUAL ATONY IN THE FEMALE.

The *Journal de Médecine de Paris* gives the following prescription:

- ℞ Extract of cannabis indica,  
Extract of nux vomica, of each 30 grains;  
Aqueous extract of aloes, 7 grains;  
Make into one hundred pills and take three a day.

#### INFANTILE ECLAMPSIA OF GASTRO-INTESTINAL ORIGIN CURED BY HYPODERMOCLYSIS.

In *La Presse Médicale Belge* of April 25, 1897, NAUWELAERS reported a case of this character, his attention having been called to an earlier communication of Solé in which was recorded the treatment of a case of puerperal eclampsia by this means.

On the 27th of December he was called to see a child aged seven weeks, who was being nourished by means of sterilized milk. The patient had been suffering from obstinate constipation, although it had gained considerably upon this diet. The abdomen was tense and painful and there were evidences of great nervous irritability, so that the child seemed to be on the border of a convulsion. On the next day the child had vomiting and green diarrhea, suffered greatly from colic, and was evidently in continual pain. On the 29th it was no better, and received some calomel. On the 30th the calomel produced vomiting, and the next day the child refused



to nurse and seemed quite ill. Three days later, at three o'clock in the afternoon, the child was taken with violent convulsions, and passed into a condition of profound collapse. Before the physician's arrival a hot bath had been given without very material modification of the patient's condition, and one week after it was first taken ill it was seized with a series of convulsions of considerable severity. The vomiting became frequent, there was somnolence interrupted by sharp cries of pain, the fontanelles were depressed, and the pulsations were very feeble. The child received some albumen water and later some bicarbonate of sodium, benzo-naphthol, and salicylate of bismuth; frictions were applied to the abdomen by means of chamomile oil. After three injections the bowels were moved. The next day the convulsions had disappeared, but later on returned. The patient afterward became desperately ill and passed into a state of collapse. Under these circumstances it was decided to inject normal salt solution into the subcutaneous tissues. This was done, with extraordinarily good results. The convulsions ceased, the general condition of the child improved, and ultimate recovery took place. The injections amounted to as much as two-thirds of a pint in eight hours. Altogether a considerable number of these injections were found necessary before they could be stopped.

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**THE TREATMENT OF FETID BRONCHITIS AND PULMONARY GANGRENE  
BY HYPOSULPHITE OF SODA.**

The *Revue de Thérapeutique* of March 15, 1897, records the fact that DUMAS has employed this treatment in a large number of cases of bronchiectasis and in tuberculosis with cavities for the purpose of combating the fetid character of the expectoration and modifying the septic condition of the bronchial tube. He has employed creosote, guaiacol, myrtol, menthol, and a large number of other substances, such as eucalyptus and turpentine, but has obtained the greatest advantage from the use of the hyposulphite of sodium. He claims that this substance may be taken each day in the dose of from two to three drachms without difficulty; that it is eliminated partly by the urine and partly by the lungs. He has found that as much as half an ounce acts as a laxative and half as much more as a purge. Its action is not immediate. He considers that the hyposulphite of sodium is contraindicated where there is a

tendency to hemoptysis, and for this reason it has to be used with some caution in pthysical patients with cavities. It does the most good in modifying the character of the expectoration in gangrene of the lung, being particularly useful in those cases which arise from traumatism, from the inhalation of irritant or toxic materials, or from gangrene of the lung complicating other diseases.

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**THE USE OF ICHTHYOL IN SMALLPOX.**

*La Médecine Moderne* of April 21, 1897, tells us that KOLBASSENKO has highly recommended dressings containing ichthyol in the treatment of smallpox. It is employed in the following manner: As soon as the papules appear the skin is anointed with the following prescription:

℞ Ichthyol, 3 drachms;  
Oil of sweet almonds, 2½ ounces;  
Lanolin, 5 drachms.

Or,

℞ Ichthyol, 1 drachm;  
Vaselin, 1 ounce.

This allays the itching and the pain, and modifies the degree of suppuration, and seems also to decrease the pitting.

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**A SKIN ERUPTION DUE TO ANTIPYRIN.**

*L'Abeille Médicale* of March 27, 1897, tells us that LYON has reported to the Society of Therapeutists in Paris the case of a woman of thirty-three years, who several hours after the ingestion of antipyrin developed a general pemphigus-like eruption upon the skin and also upon the buccal mucous membrane. This condition lasted for ten days. There was also a scanty urine, but no albuminuria.

Blondel reported a case in which the eruption was accompanied by a stomatitis; and Goldschmidt of Strasburg is recorded as having seen edema of the lower extremities and the vulva, with blebs forming under the skin, as a result of full doses of antipyrin. All these symptoms ceased when the drug was stopped. In the discussion which followed the report of these cases Lyon expressed the opinion that they were only apt to occur in those persons with renal lesions.

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**DROPS FOR ATONIC DYSPEPSIA.**

℞ Tincture of nux vomica, 2½ drachms;  
Resorcin, 7 grains.

Mix and take five to ten drops three times a day.

## HYPNOTICS FOR CHILDREN.

In *La Tribune Médicale* of April 21, 1897, COMBY is reported as considering this question in a clinical lecture. After pointing out the necessity of proper hygienic surroundings and feeding in the treatment of restlessness and sleeplessness in children, he proceeds to a consideration of the drugs which may be employed, such as orange flowers, chamomile, and similar gastric stimulants and nerve sedatives. He also calls attention to the fact that in certain cases codeine may be administered in syrup, and that even morphine and laudanum may be required. As a rule, however, the ordinary sedatives are much better than these pain relievers. The disadvantage of employing the bromides is that they stupefy the patient; very often tincture of musk ten to twenty drops, asa-fetida, valerian, Hoffman's anodyne, or a few drops of cherry-laurel water, will be sufficient to produce sleep. If chloral is employed it may be given in the dose of one grain for each year of the child. Or chloralamide may be used in the following prescription:

- ℞ Chloralamide, 10 grains;  
Syrup of orange flowers, 1 ounce;  
Water, 2 ounces.

Two teaspoonfuls an hour apart before going to bed.

In other cases a prescription composed as follows may be used:

- ℞ Bromide of potassium,  
Chloral, of each 30 grains;  
Fluid extract of hyoscyamus, 30 minims;  
Fluid extract of belladonna,  
Fluid extract of cannabis indica, of each 1 drachm;  
Syrup of orange flowers, 1 ounce;  
Elixir aromatic, 1 ounce.

A small teaspoonful for two doses before going to bed.

Comby thinks sulphonal should be administered in the dose of three or four grains to a child of three or four years. Trional seems to act equally well. Thus he cites a case of a boy two and a half years old who was attacked with scarlet fever and suffered from marked nervous excitement and insomnia, in whom five grains of trional produced a peaceful and quiet sleep during the entire night.

In another case, a girl of three years, convalescing from scarlet fever and suffering from insomnia, received the same dose of trional repeated for three days, with the result that useful sleep was produced. He then cites other cases in which it was equally useful.

[After reading this article we would like to call attention to the fact that very rarely is it

necessary or advisable to administer such powerful hypnotics to children, unless it be in the course of some one of the acute infectious diseases when the nervous symptoms are most manifest. In our experience proper regulation of the diet and avoidance of excitement prior to bedtime produce all the results that can be desired.—ED.]

THE SUBCUTANEOUS INJECTION OF  
GUAIACOL CHLOROFORM.

*La Médecine Moderne* of March 10, 1897, states that COLLEVILLE has employed hypodermically a solution of guaiacol and chloroform in the proportion of six parts to ten. This is to be injected directly into a painful point in the dose of from fifteen to thirty drops, and has proved itself peculiarly useful in the treatment of nerve pains such as sciatica. If as much as fifty minims are given the injections are sometimes followed by induration, which, however, gradually disappears.

These injections are preferable to the morphine injections, and are to be preferred to rubbings and frictions.

PRESCRIPTIONS FOR CREOSOTE AND  
NAPHTHOL.

MAXIMOWITCH in the *Deutsche Archiv für Klinische Medizin* records his use for five years of these substances in the following prescriptions. As Alpha-naphthol is very strong he usually uses Beta-naphthol. But, on the other hand, he sometimes gives Alpha-naphthol as an intestinal antiseptic, with castor oil, as follows:

- ℞ Alpha-naphthol, 45 grains;  
Chloroform, 5 minims;  
Oil of peppermint, 2 minims;  
Castor oil, 3 drachms.

The dose of this for a child of from three to ten years is one to three teaspoonfuls. He finds it useful in dysenteric diarrhea and choleraic discharges.

Tablets are prepared as follows:

- ℞ Alpha-naphthol, 5 grains;  
Powdered rhubarb, 1 grain;  
Extract of belladonna,  $\frac{1}{4}$  grain.

One or two of these tablets are taken at a dose several times a day. In cases in which there are arthritic tendencies or oxaluria, or the uric acid diathesis, he is apt to combine with this tablet small doses of aloes or podophyllin, and in typhoid fever the dose of naphthol is increased from twenty to sixty

grains a day. He also believes that it is useful in the local treatment of erysipelas in the proportion of one per cent., and in laryngitis or tubercular laryngitis a spray may be used in the strength of ten per cent. The following prescription may be employed when it is advisable to use creosote:

- ℞ Creosote, 3 drachms;  
Alpha-naphthol, 45 to 60 grains;  
Powdered iodine, 3 grains;  
Cod-liver oil, a sufficient quantity to make 6 ounces.

Half a teaspoonful of this may be given each day to a child of ten years. Or the following pills may be given:

- ℞ Creosote or guaiacol, 3 drachms;  
Iodoform, 15 grains;  
Eucalyptol, 1 drachm;  
Arsenous acid, 1 grain;  
Strychnine, 1 grain;  
Sulphate of atropine,  $\frac{1}{4}$  grain;  
Extract of gentian, and  
Gum arabic, a sufficient quantity to make up 100 pills.

Three or four of these pills may be taken each day.

#### THE TREATMENT OF DIABETIC COMA.

In *La Semaine Médicale* LEPINE, of Lyons, reports still another case of diabetic coma treated with success by two drachms of chloride of sodium and two and a half drachms of bicarbonate of sodium in one quart of sterilized water.

#### A POWDER FOR CORYZA.

- ℞ Subnitrate of bismuth, 1 drachm;  
Powdered camphor, 10 grains;  
Powdered boric acid, 30 grains;  
Hydrochlorate of morphine, 1 grain;  
Hydrochlorate of cocaine, 1 grain;  
Powdered benzoin, 15 grains.

A pinch of this is to be snuffed up the nostrils.

#### THE TREATMENT OF CARDIAC ARRHYTHMIA.

In *La Médecine Moderne* of March 17, 1897, HUCHARD contributes an interesting article upon this subject. He first considers those cases of cardiac arrhythmia which are not to be treated by digitalis or by cardio-vascular tonics. Most of these cases arise from the excessive use of coffee or tobacco or alcohol, and can be cured by regulation of the diet or drink, the disturbance being either due to the direct effect on the nervous mechanism of the heart or to the irritation of the gastro-intestinal tract. In cases of tobacco heart

there are very frequently evidences of pseudo-angina pectoris. In other cases, too, the condition of arrhythmia is to be removed by removal of reflex irritation such as diseases of the gastro intestinal, uterine, or hepatic systems. In those cases in which there is organic disease of the heart, on the other hand, it will often be found that the gastric disorder is due to an imperfect circulation. Nevertheless, in these cases marked benefit may be obtained by improving the condition of the stomach by the administration of alkalies or hydrochloric acid, according to whether there is too great acidity or lack of acidity in the gastric juice. In nearly all these cases, unless there be marked feebleness of the heart, digitalis is contraindicated, and this drug by irritating the stomach may actually make the condition worse.

Many cases are more benefited by the administration of bromide of potassium and atropine than by the administration of digitalis. Finally, in ordinary intermittence of the cardiac action digitalis, as a rule, will be found absolutely useless.

The second class are those in which digitalis and cardiac tonics are advisable. These are the cases in which the symptoms are continually present and in which there is an insufficiency of the mitral valves and an arterial change. If, however, there be much myocardial change digitalis does little good, and in its stead strophanthus is to be employed. In the arrhythmia which is sometimes seen in the aged, digitalis must be employed with caution, because of atheromatous changes in the blood-vessels; and where it is not considered wise to employ it, it may be necessary to give other cardiac tonics, such as sparteine, in the dose of one-half to one grain several times a day, at the same time reducing blood-pressure by the use of a milk diet and nitroglycerin. If, as already pointed out, there is marked myocardial degeneration associated with the arrhythmia, digitalis does little good. Many of these cases are much benefited by an absolutely rigid milk diet. The last set of cases are those in which there is an excessive arterial tension. This usually occurs in persons with atheromatous changes, and because of these changes and the high tension digitalis rarely does them good, at least until sufficient doses of nitroglycerin have been used to render the arterial tension approximately normal. In all these cases, however, the regulation of diet and the maintenance of a normal gastric action is absolutely essential.

*THE USE OF HYPODERMOCLYSIS IN THE  
TREATMENT OF CHOLERA INFANTUM  
AND THE HEMORRHAGE OF THE  
MENOPAUSE.*

In the *Journal de Médecine de Bordeaux* for April, 1897, DUKODIE considers the value of artificial serum injections in these conditions. He first cites some of the original literature in regard to their employment, particularly concerning the strength of the solutions that should be employed. In pressing cases intravenous injections are to be resorted to. As a rule one and a half quarts is quite a sufficient quantity either for hypodermoclysis or intravenous injections, whether the condition be one of hemorrhage or one of shock or toxemia.

[This quantity has usually been found quite sufficient in our experience.—ED.]

*THE TREATMENT OF TYPHOID FEVER  
BY GUAIACOL.*

In the *Journal de Médecine de Bordeaux* KETCHER records brilliant results which he claims to have obtained in twenty-nine cases of typhoid fever by the use of guaiacol. In all these instances he believes that the course of the disease was considerably modified by its employment, either when used internally or externally.

*HYDRASTIS CANADENSIS IN THE TREAT-  
MENT OF BRONCHIAL CATARRH.*

In the *Centralblatt für Innere Medizin* of May 1 Dr. M. SAENGER, of Magdeburg, gives his impressions of hydrastis as a remedy for bronchial catarrh. It seems that some six years ago he prescribed it for a patient whom he was treating for a tuberculous affection of the larynx and apex catarrh, the immediate occasion of its employment being a trifling hemoptysis caused by the patient's lifting a heavy weight. Four days later Dr. Saenger saw the patient again, and learned from him that for three days there had been no blood in the expectoration, and furthermore, that a tormenting cough with which he had suffered had completely disappeared, the expectoration had become decidedly less, and the character of the sputa had changed in that they were far less frequently greenish and tenacious than before. The patient, a man of intelligence, imputed all his improvement to the use of the medicine that had been ordered for him.

Although Dr. Saenger himself was properly skeptical as to this point, he tried hydrastis

on another phthisical patient, not for the purpose of checking hemoptysis, but to mitigate a troublesome cough with great difficulty of expectoration. In this case, too, there was great improvement. For the most part the sputa lost their purulent admixture and became thinner. The patient declared that the medicine had given him more relief than he had obtained from the morphine, codeine, Dover's powder, apomorphine, and other like drugs that had previously been ordered for his cough. His night's rest was no longer disturbed by coughing, he could breathe easier and deeper, he felt stronger, and he was better able to attend to his business. As in the first case mentioned, physical examination of the thorax showed a notable diminution of the bronchial catarrh.

Subsequently Dr. Saenger used hydrastis in a great number of cases of bronchitis, including those not dependent on the tuberculous trouble. He found that in the initial stage of acute bronchial catarrh it was quite ineffectual, but that in the subsequent course of the disease it was beneficial, especially if the course was protracted and the sputa had lost their purely mucous character and assumed a muco-purulent aspect. He found the remedy particularly efficacious in chronic bronchitis, for it mitigated the cough strikingly, facilitated expectoration, changed the muco-purulent character of the sputa to a more mucous one, and decidedly diminished the physical signs.

As compared with opium and its derivatives, says Dr. Saenger, if hydrastis is not quite so prompt in its action in checking the cough, it is more enduring and its final effect is greater, for it acts upon the cause of the cough, producing a more or less complete disappearance of the catarrh. As an expectorant, it is at least equal to the other expectorants and solvents that are in use. So far as can be judged from physical exploration of the chest and from examination of the sputa, it far excels the other antibronchial drugs in use. He states that he could not do without hydrastis now in the treatment of bronchial catarrh, acute as well as chronic, for it enables him to dispense with the use of opium and its derivatives almost entirely in the treatment of tuberculous subjects.

He has employed it in the form of the fluid extract almost exclusively. To adults he gives twenty, twenty-five, or thirty drops four times a day, in a little sweetened water. In case it does not produce the expected effects, larger doses may be used. He has

not found hydrastinine so trustworthy as the fluid extract. He has never observed dangerous or unpleasant effects from the doses of the fluid extract mentioned, but he remarks that very large doses may give rise to angina pectoris in the subjects of heart disease and in very debilitated persons.—*New York Medical Journal*, May 15, 1897.

#### INJECTIONS OF IODOFORM INTO AND AROUND TUBERCULAR JOINTS.

GILBERT BARLING writes to the new journal *Treatment* about this therapeutic method, and says that the positive demonstration that many of the so-called strumous lesions coming under the care of the surgeon are really tubercular seems for a time to have upset the minds of some surgeons. They preached a crusade of extremely active treatment of many of these lesions, and especially of tubercular joints; indeed, they wrote and spoke as though tubercular joints were little more amenable to measures, other than operative, than malignant disease itself. Now that the new name for the old disease has become more familiar, we are able once again to recognize that tubercular joint disease is as a rule very amenable to treatment, and that the great principles of rest and immobilization, thoroughly carried out, bring patients through their troubles safely—often with practically healed joints. Whilst this is generally so, it happens in a certain number of cases, either from want of rest or from feeble tissue resistance in the patient, that the disease is progressive, and some supplementary treatment is needed to hinder its progress and to obviate the necessity of future excision or amputation. It is impossible here to discuss the many remedies which have been advocated. The writer proposes to deal with one only, of which he has now had several years' experience without any drawback, and from which in some cases he has seen very great advantage.

The remedy of which he writes is iodoform, injected into or around the affected joint. He has now discarded ether and olive oil as the vehicle for solution or suspension, and always uses glycerin, with a little water added if it is very thick. Suspended in the fluid is ten per cent. of iodoform, practically none of which is actually in solution. To the fact that the iodoform is not really dissolved, as it is in ether, is due no doubt the immunity from iodoform poisoning, from which none of the author's cases have suffered.

As to the method of injection and the preparation of the emulsion: The writer has often injected the fluid without sterilizing it, but as an extra precaution latterly he has had it heated for half an hour in a water-bath. The iodoform lying at the bottom of the fluid is not lost by volatilization. The emulsion is best freshly prepared. The syringe should be one capable of holding not less than six drachms, of being taken entirely to pieces, and it should be supplied with coarse needles as the emulsion is rather thick; all parts should be boiled just before use. The amount to be injected varies from one to five or six drachms, according to the age of the patient and the joint involved. For instance, into the knee-joint of a child of five or six years two or three drachms may be introduced; into the corresponding joint of an adult, twice that amount. It is not always necessary to inject into the joint cavity; greater advantage is often obtained by injecting into the thickenings of the tendon sheaths around, as in the wrist-joint, or into the pulpy thickenings produced by the tubercular infiltration penetrating the joint capsule, such as occurs in the front of and behind the great trochanter in the hip-joint. In these cases smaller quantity of the emulsion is used.

The immediate effect of the injection into a joint cavity is to set up a good deal of effusion, the swelling increasing for about twenty-four hours. This may cause a considerable amount of pain, and the temperature rises from two to four degrees, but by the fourth day it generally becomes normal, the pain disappears, and the swelling also in about ten days. If the injection is only into the tissues around the joint the local and general disturbances are much less marked. The injection may be repeated, either exactly into the same part or more often at one adjacent; but he has been in the habit of allowing at least a fortnight to intervene before repeating the attack.

It goes without saying that this is no remedy for tubercular lesions in the bones, such as are inaccessible to the emulsion; when, however, we have superficial caries of the ends, secondary to destruction of cartilage from synovial invasion, he believes the effect is valuable. It is, however, in the granulation thickenings, with caseation of the synovial membranes, tendon sheaths, and other soft structures around the joints, that the best effects are seen. The diminution of swelling, and the loss of the elastic semi-fluctuating feel that these tubercular forma-

tions produce, and eventually their disappearance, are the indications of the value of the remedy. How the effect is produced, whether by a specific action of the iodoform on the tubercle bacilli, or merely by the fibrosis produced by the irritation of the emulsion, he has no room to discuss; but his results with iodoform injections are very much better than those he has obtained with zinc chloride—so much so that he has discarded the latter. Every one is of course familiar with the difficulty in arriving at the correct conclusion as to the value of drugs in the treatment of disease. The statistical method has so many weak points that it is of no value here; the judgment of the individual surgeon must be taken for what it is worth, and he has no hesitation in saying that many of his cases have derived great benefit from injections of iodoform emulsion in tubercular joint disease. Rest and fixation are carried out by the writer thoroughly. If the cases are not doing well he resorts to the injections, still keeping the part at rest. If improvement now takes place instead of progress of the disease—a change he frequently sees—surely there is every justification for speaking well of the use of iodoform, seeing that the only altered condition is the injection of the emulsion. All cases do not benefit, and he is not able to distinguish positively what are the conditions under which the emulsion will do good.

If evil effects, local or general, followed the injections, they might weigh heavily against their use. But the writer is able to say that in no case, either in hospital or in private practise, has he seen any drawback beyond the slight feverish disturbance he has already described; and in private cases, when he has advised this treatment and left it to the practitioner in charge to carry it out, he has heard of no mishap of any kind, although he has always made inquiries.

#### A CASE OF POISONING BY JABORANDI.

Before the Society of Therapeutists of Paris on April 28 LAVAL recorded a case of a woman, suffering from chronic iritis, to whom was given thirty grains of jaborandi on one day for the purpose of producing profuse salivation and perspiration. As this dose did not produce the desired effect, a dose of sixty grains was given on the next day without marked influence. On the third day the patient obtained the larger dose of jaborandi from another druggist, and passed

into a very marked sweat after the ingestion of the infusion. The treatment was continued on the fourth, fifth and sixth days. At this time the patient began to suffer from palpitation of the heart, nausea, great anorexia, and a sensation as if a foreign body was in the throat. There was also a sensation of thoracic constriction. An examination of the throat showed it to be dry and red. In the treatment of conditions of the eye and ear in which jaborandi is thought to be useful, it is probably better to administer the alkaloid pilocarpine hypodermically rather than to employ the infusion.

#### OBSERVATIONS ON THE ANTICIPATION OF POST-PARTUM HEMORRHAGE, WITH REMARKS ON THE ACTION OF ERGOT ON PREGNANT WOMEN.

This important topic is discussed by WALKER in the *British Medical Journal* of March 6, 1897. Finally we may say in regard to his views that they are when summed up as follows, at least so far as the action of ergot in combination with strychnine, which is the formula the author usually adopts, is concerned:

1. That when administered previous to the termination of pregnancy in the case of women in whom a tendency to post-partum hemorrhage is known to exist, it tends in a marked manner to prevent the occurrence of hemorrhage.

2. That when so administered in ordinary doses, it does not produce any injurious effect on either mother or child, and that its exhibition seems to delay the commencement of labor in such case.

3. It tends to make the involution of the uterus more perfect, and lessens the chance of the occurrence of subsequent uterine troubles, many of which depend for their cause on imperfect involution of that organ.

4. It will not bring on premature labor or induce abortion unless uterine action has previously been set going.

5. In cases of threatened abortion its administration frequently seems to act as a uterine tonic, and in some cases tends to avert the danger of a miscarriage, provided the ovum be not blighted.

6. That if the ovum be blighted, and specially if it be detached, ergot usually hastens its expulsion.

Since writing the foregoing the writer has observed in the *Epitome* which appears in the *British Medical Journal* of January 16

an abstract of a communication made by Professor Schwab on the efficacy of quinine as an oxytocic. This drug, he maintains, "stimulates the uterine fibers when once they have begun to contract of their own accord. Like ergot, it does not set contractions going." The writer has never administered quinine as an oxytocic during labor, but it will be remembered that he has stated at the commencement that it was the unexpected immunity from post-partum hemorrhage in a patient to whom he had administered quinine prior to labor that induced him to carry out the preventive treatment he now advocates, and that it was quinine he first administered for this purpose. His observations, therefore, tend to confirm the views enunciated by Schwab as to the action of quinine on the uterine fibers, and further observations of the action of quinine as an oxytocic should be made. He does not think, however, that it would prove as reliable a drug for this purpose as ergot is. Schwab, too, confirms the opinion he has long held, that ergot does not originate uterine action.

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#### THE USE OF ARTIFICIAL SERUM INJECTIONS IN MENTAL AND NERVOUS DISEASES.

MAIRET and VIREs are quoted in the *Revue de Thérapeutique* of March 15, 1897, as recommending these injections in epilepsy and mental diseases, for they may do good and cannot do harm. Furthermore, in certain cases it is justifiable to add to the saline solution such drugs as bromide of potassium, ergotin, and phosphoric acid.

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#### IDIOSYNCRASY TO CAFFEINE.

In the *Revue de Thérapeutique* of April 1, 1897, DALCHÉ reports a case of peculiar susceptibility to caffeine. The patient was a diabetic sixty years of age, who had suffered from secondary grippe pneumonia. He received four doses of five grains of caffeine each. Immediately after this he developed marked excitement, great loquacity, delirium, vomiting, cutaneous hyperesthesia, and the development of diabetic coma seemed imminent, particularly as the reddish-brown reaction with the perchloride of iron was obtained in the urine. After a short time, however, the patient rapidly improved. The author is inclined to believe that the patient had an idiosyncrasy to the drug rather than that his disease made him unduly susceptible to it;

and in the discussion which followed Bardet mentioned a case in which a single drop of laudanum produced grave intoxication. Other cases have been known to follow the administration of the iodides, the bromides, and codeine.

Another reporter cited a case in which a young woman was seized with violent vomiting after being rubbed with a lotion containing laudanum; another case was seized with epistaxis whenever bicarbonate of sodium was taken in a little water; and in still another case the patient could not take nitrous oxide gas without the development of disagreeable symptoms.

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#### THE USE OF SCOPOLAMINE.

TOMASSINI records in *La Riforma Medica*, No. 12, 1897, that  $\frac{1}{100}$  of a grain of scopolamine is beneficial as a cerebral depressant in cases of meningeal insanity. If given in injections it does not produce much pain or local reaction. Sleep comes on rapidly, the patient being quiet in a very few minutes. The pulse is regular, being little diminished in force or frequency; respiration is not altered. Sleep usually lasts from four to five hours, and may be prolonged to eight hours without any interruption. The cases in which scopolamine is particularly indicated are those in which a powerful sedative is required, as for example acute mania and maniacal epilepsy.

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#### THE USE OF THE HOT PACK IN THE TREATMENT OF THE INSOMNIA OF NEURASTHENIA.

In the *Revue de Thérapeutique* of March 15, 1897, D'AULNAY points out the valuable results which are to be obtained in producing sleep in neurasthenia by means of the hot pack. The patient is first sponged off with cool water and is then quickly wrapped in a blanket which has been wrung out of hot water. Outside of this is placed a dry blanket, and about this dry blanket is also placed hot bottles. The patient in the course of a few minutes breaks out into a sweat, and after this sweat has been continued for five or ten minutes he is placed between warm blankets, rubbed off with a towel, and soon goes to sleep. In this article the writer records a number of cases of nervous insomnia in which this treatment produced very good results. It is not very much trouble, particularly if the trained nurse can administer it.

*THE TREATMENT OF MUCO-MEMBRANOUS ENTERITIS IN INFANTS.*

COMBY in the *Revue de Thérapeutique* of April 1, 1897, directs that in the treatment of this condition we shall combat the tendency to adynamia and collapse which is frequently present. If necessary we should administer saline injections. Carefully sterilized food should be employed, and different things should be tried until that most satisfactory to the child is discovered. Very often the following prescription in this condition will be found of value:

- ℞ Bicarbonate of sodium,  
Calcined magnesia, of each 5 grains;  
Powdered nux vomica,  $\frac{1}{4}$  grain.

This may be given to the patient two or three times a day according to the age. If constipation is a prominent symptom glycerin suppositories or small injections of glycerin made with a small syringe will be of value.

*A CASE OF POISONING BY POWDERED PYRETHRUM.*

FERRAND has recently reported to the Society of Therapeutists of Paris the case of a child of eleven months who took a considerable quantity of pyrethrum powder. Pallor, vomiting, collapse, slow and feeble heart, and depression of respiration asserted themselves, but the patient was saved by the administration of an emetic dose of ipecac. In some cases in which pyrethrum powder has been inhaled it has produced asphyxia by causing a spasm of the upper respiratory tract.—*Revue de Thérapeutique*, March 15, 1897.

*THE TREATMENT OF CHLOROSIS.*

In the *Revue de Thérapeutique Médico-Chirurgicale* is a paper by HUCHARD upon the treatment of chlorosis. He points out that these chlorotic cases can be divided into three classes: Those in which iron is absolutely useless; those in which it is fairly valuable; and those in which it is an absolute necessity. The cases in which it is useless are those which have been deprived of fresh air and sunshine, and only need proper food and outdoor life, with stimulant treatment, to regain their health. Those in which it is moderately valuable are the pseudo-chlorotics who have as an underlying cause a tendency to develop tuberculosis with general debility; but as a rule the more dyspeptic the patient the less good will iron do. The cases in which the iron is most useful are those in

which the patients are devoid of dyspeptic symptoms, when any one of the common iron preparations may be given in large or small doses with advantage. Should there be a syphilitic dyscrasia underlying the anemia, mercurials should be administered in addition to the iron, preferably the bichloride of mercury.

*THE TREATMENT OF THE VOMITING OF PREGNANCY BY OXYGEN WATER.*

The *Journal des Praticiens* of March 20, 1897, quotes GALLOIS as having employed oxygen water with very great success in the treatment of the vomiting of pregnancy. He has often found inhalations of oxygen useful. The oxygen water which he employs contains ten volumes of the gas, and is administered in the dose of one teaspoonful to the ounce, diluted with an equal quantity of water; or in other cases diluted even further than this. The liquid is to be taken in small quantities, half to one teaspoonful at a time. He claims that its action is rapid and that relief is soon obtained.

*THE TREATMENT OF WHOOPING-COUGH.*

In *La Médecine Moderne* of March 3, 1897, a quotation is made from a Russian journal in which the following methods of treating whooping-cough are advised: In some cases it was found that oxide of zinc in small doses with small doses of belladonna diminished the number and intensity of the attacks, but the cases lasted from eight to eleven weeks. Out of twenty-five children treated with oxide of zinc two succumbed to bronchopneumonia. The author is therefore not inclined to regard the oxide as a specific in whooping-cough. In fifteen children from two to five years who received terpine hydrate in full doses, the duration of the affection was seven to ten weeks. He considers that the terpine is particularly indicated in those cases with bronchopneumonia. The bromide of sodium was prescribed in five cases in children from two to six years in the dose of forty-five grains to one drachm in a day. These cases lasted from seven to nine weeks. In eight cases antipyrin was given to children varying from three to six years. The dose was large—from thirty to forty-five grains—and the attacks were not very materially diminished. In other cases antipyrin and codeine were combined, and in fifteen of these cases the duration was from six to eleven weeks. In five cases the author used sprays of cor-



rosive sublimate in the proportion of 1 to 1000 in the pharynx, with the result that the treatment extended only over three weeks. DITEL, the reporter, concludes that during the convalescent period of the cough the bromides are the best treatment, and that they may be gradually replaced by codeine; that if fever is present antipyrin is indicated, and if bronchitis is marked terebine is useful. He concludes that there is no specific medication, and that our treatment must be purely symptomatic.

#### *A CASE OF POISONING WITH ARSENIC INTRODUCED INTO THE VAGINA.*

*Treatment of May 13, 1897*, abstracts from the *Wiener Klinische Wochenschrift* of March 4, 1897, the following interesting case. It was that of a servant girl, twenty-five years old, who committed suicide by introducing white arsenic into her vagina.

At the post-mortem examination, besides the typical signs of arsenic poisoning in the internal organs, the following interesting conditions in the genital organs were found:

Large labia much swollen, edematous; on them and in their neighborhood numerous small round pustules, surrounded by an inflammatory halo, some of them dried up; much excoriation about anus and buttocks. Inner surfaces of large and small labia much swollen, dusky red, covered with croupous exudation. Hymen destroyed. Lower half of vagina permeable; two inches above the vaginal orifice a mass of pale-yellow fibrinous exudation, which occluded the vagina perfectly; the whole upper half of the vagina lined with pseudo-membrane, one-third of an inch thick, which also covered the fornix, the vaginal portion of the uterus, and the cervical canal. Exudation firmly adherent to the immensely swollen mucous membrane, which was thrown up in thick folds of a vivid red color, and closed in round a plug of crumpled-up yellow paper, the size of a cobnut, which contained a great quantity of white, opaque granules; the mucous membrane of the lower half was covered by a thin membranous exudation; the rectovaginal septum swollen, brawny, infiltrated to the thickness of nearly one inch, and containing numerous ecchymoses. Anterior half of rectum for about two inches dark brown, infiltrated, its mucous membrane covered with bran-like flakes of fibrin.

The quantity of white arsenic found in the vagina amounted to nearly six grains; in the

internal organs the analyst found half a grain of arsenious acid.

Deceased had not been pregnant. Only five cases of poisoning with arsenic from the vagina are on record.

#### *THE DIAGNOSIS AND TREATMENT OF ACUTE RHEUMATISM IN CHILDREN.*

M. B. CHEADLE, in *Treatment of May 13, 1897*, asserts that as in the rheumatism of children all the symptoms, both articular and constitutional, are usually subdued and sub-acute, active treatment by full doses of salicylate of soda is not usually required. The free exhibition of it is indeed often harmful by its depressing effect; children bear drastic treatment badly. When, however, the joint trouble and pyrexia are marked, the salicylate should be given in appropriate doses at short intervals until these subside. The milder drug salicin may in most cases be substituted for salicylate of sodium, given in doses of five to twenty grains; or quinine in doses of one to three grains every four hours. In each case an alkali, such as citrate of soda or potash, in full doses, should be combined—doses of five to twenty grains according to age. The use of depressant drugs, such as antipyrin, antifebrin, aconite, with a view to lowering temperature, cannot be too strongly deprecated.

The general evidence of statistics seems to favor the conclusion that cardiac inflammation is less frequent and less pronounced under full alkaline treatment than under any other. In the case of children this assumes special importance; the one great object of treatment should be to minimize this danger as far as possible. Whenever there is a suspicion of rheumatic inflammation, absolute rest in bed should be enforced, even if there is no sign of any affection of the heart. Complete physical repose and external warmth are essential.

The condition of slight rheumatism, in the case of children at all events, is treated far too lightly. Timely care in avoidance of fresh chill, of all excitement or strain of heart structures, may make all the difference in the degree of heart mischief remaining in the end. Dr. Sibson found that in acute rheumatism patients treated by rest escaped permanent heart lesion in the proportion of two to one, as compared with those allowed free action. When pericarditis supervenes, if there is much pain and distress, one or two leeches may be applied to the præcordia;

but anything like profuse extraction of blood is positively harmful. Children do not bear much loss of blood. The most effective local application is that of the ice-bag advocated by Dr. Lees. In pleurisy and pericarditis, where the inflamed membrane lies near the surface, and in intimate vascular connection with it, the application of ice appears not only to relieve pain but to exercise a favorable influence on the inflammatory process. It is usually grateful and readily accepted even by young children.

In cases of the deadly form of cardiac inflammation, which is perhaps the most characteristic feature of the rheumatism of childhood—viz., persistent, recurrent, subacute endocarditis and pericarditis—opium, digitalis, and strophanthus, with an alkali, are the drugs of most service. The former is best given as nepenthe in frequent small doses of from one to five drops, according to age, every four hours; and it does more than any other drug to relieve distress, lessen dyspnea, and subdue pain. If given with proper care it is perfectly safe.

Alcohol is also a most useful agent, as much from its sedative as by its stimulant property.

As a last resource, and in the case of older children only, when the heart shows signal signs of failure, when the first sound becomes short and feeble, and the pulse small and irregular, hypodermic injections of Liquor Strychniæ (B. P.) in doses of one-eighth drop to one drop or more, according to age—combined with five to ten minims of brandy—or one to three minims of digitalis, given in the same way, afford the most powerful means of resting the flagging heart. Usually, however, this only effects a brief rally and respite from the final collapse.

#### THE TREATMENT OF SOME FORMS OF HEMIPLEGIA.

LEONARD G. GUTHRIE, in *Treatment* for May 13, 1897, in discussing this subject points out that the actual treatment is largely based on prognosis—that is to say, on our knowledge of the course most likely to be pursued.

Thus, as the leg recovers before the arm, and its recovery is most important to the patient, we devote attention to it first. As joint movements return from above downwards in order, we treat joints in this order, so as to encourage the patient by the success which attends treatment of each in turn.

Passive movements are necessary from the

first in order to prevent adhesive rigidity, which should never be allowed to occur at all.

Massage and electricity improve the general nutrition of the limbs. Artificial warmth is essential. Pine-wool coverings serve this purpose.

Galvanism is mostly useful. The strength of current should not exceed five milliampères, which, roughly speaking, requires from fifteen to twenty cells. The negative pole should be stabile, the positive mobile.

Faradism is contraindicated when spasticity is present, but is useful in flaccid cases. The primary current should as a rule be employed.

The patient should be encouraged to make the most of each return of power as it occurs. This is the most important part of the treatment.

Mechanical contrivances, such as elastic bands of increasing thickness, to be passed over adjoining fingers, and stretched by separating the fingers, and india-rubber balls gradually inflated to be compressed within the hand, are useful in flaccid cases. The patient should occupy himself in kneading and moving the fingers of the affected hand with the other.

Disordered association may be relieved by training. In teaching the patient to walk, the words "right," "left," should be uttered as advance of each limb is required. A sharp tap behind the affected knee at the proper time will sometimes relax spasm, and enable the leg to be brought forward. An elastic accumulator fixed above the knee and carried round the neck is of similar service. Dorsiflexion of the foot may be improved by appropriate exercises.

In conclusion, it is the non-recognition of functional conditions preventing recoveries from hemiplegia which brings discredit on the profession. Such cases swell the roll of miracles at the shrines of Bernadette and Winifride. Similar miracles may equally well occur at any physician's shrine.

#### TREATMENT OF CYSTITIS IN THE FEMALE.

In the *Polyclinic* of May 22, 1897, BLOOM tells us that in the treatment of cystitis, if acute, we should put the patient to bed at once. This is the first essential in the management of such a condition. The diet should be light and unstimulating—fluid, milk, broths, and eggs. Avoid all stimulants; keep the

bowels freely open with salines; keep the patient warmly clad. If the urine is acid, it should be rendered neutral by alkaline drinks such as Vichy water with plenty of soda in it, as well as by any of the prescriptions mentioned previously.

In nearly all these cases the water is alkaline, though not as frequently in acute as in chronic cystitis. The best agent for neutralizing an alkaline urine is benzoic acid, either in solution well diluted with water, or in five-grain capsules, which are preferable, every three hours until the desired effect is obtained. Use large draughts of water after each capsule. Salol, in five-grain capsules every two hours, until the water is acid, is most valuable where there is much ammoniacal decomposition.

Boric acid ten to twenty grains in cinnamon water every three hours soon corrects offensive urine. For pain, which is often a prominent symptom, there seems to be nothing better than five-grain doses of acetanilid repeated as indicated.

Irrigation of the bladder becomes a most important adjunct in the successful management of these cases; of course, if it is acute cystitis, not until after the acute symptoms have subsided. One of the best irrigations for this purpose is potassium permanganate in one-twelfth- to one-fourth-per-cent. solution. Another very good one is one-half-per-cent. solution of acetanilid. In chronic cystitis this is one of the most valuable solutions that can be used. It can be increased in strength if found necessary.

The technique of vesical irrigation is most important. The apparatus is very simple, consisting of a soft rubber catheter joined to a piece of rubber tubing by a short piece of glass tube. A small glass funnel is connected with the other end of the rubber tube. The whole apparatus can be from four to five feet long.

Sterilization is most important before using it and immediately afterwards. Upon thorough cleanliness depends largely the successful issue of the case. Asepsis and antisepsis are as important in this operation as they would be were one about to open the abdomen. After carefully cleansing the meatus urinarius as well as its immediate surroundings, the catheter, well lubricated with sterilized vaselin, is introduced, the urine drawn off while the instrument is still in place, and the tubing filled with the column of urine, thus preventing the entrance of air; the funnel is filled with the irrigating solution and gradually

raised, distending the bladder slowly. The quantity used will depend upon the vesical irritability. Some bladders will not tolerate over an ounce; the maximum quantity should not exceed five ounces. The funnel is then lowered and the bladder evacuated in the same careful manner.

This procedure is repeated till the washings come away perfectly clear and clean. The temperature of the solution should be about 100° or 105° F.

We use this once a day at first, or at most twice a day, and after a few days lessen the frequency. Even this may fail in certain bladders to cure the trouble; then one will have recourse to drainage, keeping the bladder empty by a self-retaining catheter. This is proceeded to by first dilating the urethra to the point of paralyzing the vesical sphincter.

If this fails, Emmet's operation becomes necessary for draining the bladder through the formation of a vesico-vaginal fistula.

If the vesical irritability is due to caruncle, the only permanent relief is total extirpation under careful antiseptic precautions. If due to fissure, or ulcer, dilatations of urethra, curettage, and the application of carbolic acid or silver nitrate, always being careful to draw the water through a sterilized catheter for several days, will meet with success.

In the treatment of gonorrheal vesical irritability nothing seems to do more good than the application of pure ichthyol to the urethra after carefully cleansing it with a solution of mercury bichloride, and giving internally a capsule of two grains of ichthyol and five minims of oil of sandalwood every three hours, and one or the other of the prescriptions mentioned.

In chronic cystitis it is important to look after the general health, as well as the local treatment, and if it is, as is often found, associated with a retroversion, the success will be very much greater if the uterus is restored to its normal position.

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#### *SOME RECENT SUGGESTIONS IN THE TREATMENT OF EPILEPSY.*

Since the introduction of potassium bromide in the treatment of epilepsy by Sir Charles Locock in 1857, no agent has been found so generally useful. It is admitted, however, that the bromide treatment leaves much to be desired, and therefore new remedies are brought forward continually with the hope that they may prove more efficacious

in controlling the paroxysms, and at the same time less active in producing untoward symptoms. It has been clearly shown that certain bromide preparations have a less deleterious effect on general nutrition than others, though the same salts may be, to some extent, less powerful; this is particularly true of strontium bromide, which is far less apt to induce acne, mental depression, and gastric disturbance than the corresponding salts of potassium. According to Wood, both ammonium and strontium are stimulants to the circulation, while potassium is a powerful depressant. The strontium salt differs from the ammonium salt in being directly less active as a bromide, but in having a more happy effect on the alimentary canal. As the cost of the strontium salt has been lately considerably reduced, its employment in epilepsy will doubtless become more general. Within the last few years three drugs have been introduced in the treatment of epilepsy, which, though of little value, when administered independently are very useful adjuvants, and when combined with a bromide often lessen materially the amount of the latter required to control the seizures. These three remedies are antipyrin, the fluid extract of *Solanum Carolinense*, and opium. Antipyrin, in doses of ten or fifteen grains a day, can be given with ammonium or strontium bromide for several months without ill effects. In some instances, however, its prolonged use excites circulatory disturbances, such as coldness of the extremities, cyanosis, and copious perspiration. *Solanum Carolinense*, or horse-nettle, was first recommended by Napier. Potts (THERAPEUTIC GAZETTE, December 10, 1895) draws the following conclusions from the use of this drug in seventeen cases of epilepsy: That the drug has a decided influence for good upon the epileptic paroxysm; that this influence is probably not so great or so sure as that obtained by the use of antipyrin and the bromide salts, or even of the mixed bromides; that in those cases in which it is of service it relieves the paroxysms without causing unpleasant symptoms, such as are sometimes caused by the use of large doses of the bromides; that the dose ordinarily recommended (ten to fifteen drops of fluid extract) is too small, and that as much as a teaspoonful or more four times daily is often needed to secure results.

In the *Neurologische Centralblatt* of November 7, 1893, Flechsig announced that he had obtained brilliant results in epilepsy by prefacing the bromide treatment with the ad-

ministration of opium in ascending doses. His method consists in exhibiting the extract of opium for six weeks, in doses rapidly increased from a quarter of a grain to five grains three times a day, when the drug is stopped, and half a drachm of potassium bromide three times a day is substituted; these large doses are continued for one month, and then gradually diminished until about thirty grains per day are being taken. This treatment has been quite thoroughly tested, and most observers agree that it is of decided advantage in certain cases.

Collins, who employed it in fifty cases, has drawn the following conclusions: The plan suggested by Flechsig, if not a specific in the treatment of epilepsy, in almost every case in which it has been tried there has been a cessation of the fits for a longer or shorter time; a relapse generally occurs in a period varying from a few weeks to a few months; the frequency of the fits after the exhibition of the opium is, for the first year at least, lessened more than one-half; the attacks occurring after the relapse are much less severe in character than those the patient has been accustomed to having. This plan of treatment is particularly valuable in ancient and intractable cases; in recent cases of idiopathic epilepsy it cannot be recommended. It is an important adjuvant to the bromide plan as ordinarily employed; the opium acts symptomatically and merely prepares the way for and enhances the activity of the bromides and other therapeutic measures. This treatment permits the use of any other substances known to have a beneficial action in epilepsy.

Sulphonal and trional are unquestionably of value, and occasionally succeed where the bromides fail. While the danger of chronic poisoning precludes their prolonged use, they may be prescribed with advantage when a temporary change of treatment is for any reason desirable.

In a certain proportion of cases the exciting cause of the paroxysms seems to be the absorption of toxic substances from the intestine, resulting from indigestion and constipation. This factor of autointoxication has been carefully studied by Herter and Smith (*New York Medical Journal*, August and September, 1892), who studied 238 specimens of urine from thirty-one epileptics. In seventy-two per cent. of the observations there was an unmistakable evidence of intestinal putrefaction, as indicated by the presence of ethereal sulphates in the urine in large quantities, just before the occurrence of the

paroxysm. Such cases are remarkably benefited by regulation of diet, the use of alkaline laxatives, and a course of intestinal antiseptics.

As regards the diet, recent investigations confirm the belief that most epileptics do best on a diet that is chiefly vegetable. Merson (*Dietetic and Hygienic Gazette*, March, 1892) has recorded the results of a series of observations on twenty-four chronic epileptics. Twelve of the patients were put on nitrogenous and the other twelve on farinaceous food, and this arrangement was continued for four weeks; when the diet was reversed, and observations continued for another period of four weeks. Out of the twenty-four cases there was, in fourteen, a decided decrease in the number of fits during the period of farinaceous diet; the average number of seizures for the farinaceous period was 10.7, as compared with 28.3 for the nitrogenous period. The same results were obtained by Short (*British Medical Journal*, May 18, 1895) in the treatment of fifty epileptic women who had previously been carefully observed for twelve months in order to ascertain the average number of fits.

The hope that surgical intervention might prove of great value in epilepsy has not been realized, and a more careful study of the cases subjected to operation has proved that this method of treatment has but a very limited field of usefulness. The two classes of cases in which operations have been performed are those resulting from reflex irritation and those dependent upon some focal brain lesion. It has been shown, however, that reflex epilepsy is very rare, the proportion of cases resulting from some peripheral irritation not exceeding one or two in a thousand; and that, moreover, there are very few cases recorded in which the removal of a supposed local irritation has succeeded in permanently checking the convulsions. In the few cases of epilepsy resulting from brain injury the epileptic habit has been, as a rule, so firmly established that an operation rarely cures, and only seldom diminishes the frequency of the attacks.

Mason (*Medical News*, March 21, 1896) has tabulated seventy cases of trephining for epilepsy, and of this number three died from the operation, three were cured, and four were improved. If trephining and ablation of morbid tissue were reserved for cases in which the injury was received only a few months prior to the development of the

epilepsy, the proportion of cures would doubtless be larger than is indicated in Mason's statistics.—*University Medical Magazine*, May, 1897.

#### SPRAINS AND THEIR TREATMENT.

DOUGLAS GRAHAM (*Boston Medical and Surgical Journal*, June 24, 1897) says an eminent surgeon once remarked to him, "What you do, doctor, with your massage and movements, is to cure the patients of the results of our treatment." The customary treatment of sprains and its results are well known—absolute rest in a fixed dressing, resulting often in recovery, but too frequently in stiff, weak, and irritable joints. Sometimes these joints are deliberately sprained over again by the surgeon, with a view to loosening adhesions and overcoming the stiffness. But, unfortunately, this plan may cause the adhesions to reform stronger than ever.

A form of treatment that is no doubt well adapted for sprains of slight or moderate severity of the outer aspects of the ankle has recently been revived by Dr. V. P. Gibney, of New York. It is strapping with strips of rubber plaster alternately at right angles to each other over the outer and lower third of the leg, ankle, and foot. Elevation of the foot over night or for a few hours, and immediate massage, are advised as good preliminary measures before applying the plaster. This treatment is said to involve no loss of time, to require no crutches, and not to be attended with any ultimate impairment of motion. This plan of strapping sprained ankles with adhesive plaster was used with brilliant success by Dr. Hood fifty years ago.

If the patient is wearing a well-fitting boot at the time of spraining foot or ankle, let him keep it on and walk about moderately. If the boot is not quickly snug by reason of the swelling, it should be laced tighter. The author has twice walked off a mild sprain in this way himself. The pressure of the leather and the motion of walking give a sort of automatic massage. And when we think of it, this is not so very wonderful after all, for it is safe and salutary in sprains to allow motion that does not cause pain. It is unnatural motion that has caused injury, and even after this natural motion can often be immediately indulged in to a greater extent than either physician or patient take the trouble to find out.

A plan of treatment that seems to be well suited to sprains of all degrees of severity, and which can be used with or without fixed

dressings and bandages, according to the indications, is massage properly applied. Massage should not be begun immediately over a recently injured joint; neither should passive nor active motion be encouraged in spite of pain caused thereby, whatever others may say to the contrary. After a recent injury, pain is the cry of Nature for rest to allow repair. And it is quite possible in sprain, and even in fractures without displacements, to keep the injured parts at rest while the surrounding tissues are preserved in health and activity, the circulation kept active and absorption hastened, by means of massage.

A snug bandage is usually sufficient to afford rest and support, and to press the swelling out in the intervals between the massages. But if the bandage does not give sufficient support, then an easily removable splint or plaster may be applied. Joints tender and swollen, that do not admit of massage being applied directly upon them, can be approached by commencing on the healthy tissues some distance above them and nearer to the trunk, by gentle stroking in the direction of the returning currents of lymph and blood, and gradually proceeding downwards. The healthy tissues beyond the seat of the injury should also be similarly treated, as the circulation is hindered in getting to and from them by reason of the swelling. Besides the soothing effect of this, which enables one to gradually encroach upon painful parts, the returning currents are pushed along more rapidly, making room for exudations to be carried off. For this purpose each hand should make alternate strokes, using the greatest possible extent of the palmar surface whilst the limb is in a comfortable position.

After working a few minutes in this manner, deep manipulation, or massage properly so-called, may be brought into play, beginning as before above the painful joint by adapting the greatest possible extent of hand and fingers, one hand contracting and making the greatest push upwards as the other relaxes while gradually approaching the objective point. The effect of this is agreeably benumbing or analgesic, lessening pain without decreasing ordinary sensations, besides pushing along the deeper circulation more vigorously. The parts beyond the sprain should be treated likewise. By alternately stroking and kneading in this manner we can soon make gentle, firm pressure over the but recently painful and swollen joint. If sufficient tact be used this pressure may not hurt, but be positively agreeable; and very soon it

can have motion added to it, thus constituting massage by which the effusion and exudation are spread over greater surfaces and brought into more points of contact with veins and lymphatics, absorption by which is materially aided by the pressure of massage.

It should not be forgotten that when a light touch is disagreeable, firm pressure often affords relief, so that the whole hand is better than the finger-tips where it can be used for massage. Recent periarticular exudations are thus speedily dispersed and absorbed, which might in time have become organized, while superabundance of intra-capsular fluid is pressed into the absorbents, the function of which within the joint is increased by the pressure from without and by the acceleration of their current from the massage above the joint.

In recent sprains and synovitis this method is rational, for it quickly relieves the heat, the pain, and the swelling, and takes the pressure off the nerve filaments. The comfort to a joint, even after a single sitting, cannot be believed unless felt. The good effects of the massage are continued by means of a bandage well applied; but the pressure of a bandage alone, though it affords support, hinders the circulation by its continuous pressure, and will not take the place of massage, which when rightly applied is an intermittent pressure and an aid to the circulation.

KRASKE has demonstrated that the application of a rubber bandage to the leg of a rabbit for six hours has produced hyaline degeneration of the muscles, from which they do not recover. If we want weak and atrophic muscles, let the bandage be continued after the swelling has disappeared. Rubber bandages the author would not advise except for temporary use, as when a patient with weak joint wants to go sea-bathing. They are intensely disagreeable on account of the smell of the rubber combined with the perspiration which they produce. They are dangerous by literally strangling the tissues, for each turn, by its elastic tension, represents much more compression than the force used in putting on. Often the author has taken them off and applied a domett (or cotton flannel) bandage, and always to the great delight and comfort of the patient. A domett bandage is firm, soft, warm, and comfortable; and when you have put one on, you know what you have done, and a few extra layers of this will often take the place of splint and plaster.

Some careful physicians who are in favor

of massage in sprains think it well to wait a few days while using hot and cold water or some other treatment before beginning massage. In this event the author is not sure that the effects of massage are not more striking in arousing the limb from the lethargy and stupor into which it has been plunged by the shock of the accident. When this local lethargy and stupor have been prolonged for a month or six weeks, as must necessarily be the case when a limb is done up for a fracture, the immediate effects of massage in bringing the limb back from death to life, in starting anew the circulation, in awaking sensation and motion, are often remarkable. But sometimes, under a plaster-of-Paris dressing, the connective tissue proliferates and assumes a plank-like hardness, a literal deadness, that is most discouraging to an intelligent masseur and which is a sure sign of tedious recovery. The author believes it is possible to prevent this by having the cast removed occasionally and the limb masséed without disturbing the fragments. Rest is necessary to produce ankylosis, and he does not see the need of allowing well joints to be imprisoned to such an extent that they will become stiff while a fracture above or below them is uniting, when a little precaution in the way of massage and passive motion might preserve the function of the limbs.

From the foregoing the following conclusions would seem to be justifiable:

A sprain is a wrench or twist of a joint—a sudden partial displacement of two articulating joint-surfaces, followed by immediate replacement.

The symptoms are pain, swelling, discoloration, and usually heat, with impaired motion.

Its diagnosis may be obscured by the swelling, which may conceal a fracture underneath.

Whatever will quickly reduce the heat, the pain, and the swelling—such as massage, snug bandaging, and elevated position of the joint—will proportionately make the diagnosis easier.

The means just mentioned are therefore not only valuable for diagnosis but also for treatment; and their use in many cases of sprains of all degrees of severity shows that they recover in one-third of the time that they require under absolute rest and fixed dressings without massage.

Even a sprain of a joint previously weakened by malignant disease may be rapidly ameliorated by massage, and useful motion gained before amputation.

### PRIAPISM.

Dr. R. W. TAYLOR, of New York, read a paper on this subject before the American Association of Genito-Urinary Surgeons at its meeting in May last (*Journal of Cutaneous and Genito-Urinary Diseases*, July, 1897). He stated that this affection may be divided into the following classes:

1. Priapism observed in infants and children, induced by reflex action, in cases of long, tight, adherent prepuce, of stone in the bladder or prostatic urethra, and of worms in the rectum.

2. Priapism in adult subject, symptomatic of stone in the bladder, stone in the prostatic urethra, stricture, cystitis, and observed during retention. In these cases the uneasy or painful sensation is felt in the glans penis, while the body of the organ usually is only moderately congested and sometimes curved downward or laterally. This condition disappears upon the removal of the cause.

3. Priapism symptomatic of gonorrhea, with perhaps involvement of the corpus spongiosum and downward curvature. This condition is painful and transitory, and may occur several times during the night. In cases of downward curvature of the penis due to inflammatory engorgement of the corpus spongiosum and spasm of the musculature of the urethra, the term chordee is applied.

4. Priapism due to the ingestion of cantharides, which is a form that is seldom or never seen now, since this drug is so rarely used in medicine.

#### 5. Essential priapism.

The latter form, which was the only one considered by the author, may be divided into four varieties: (a) Priapism caused by injury to the spinal cord (either high up or low down) and by blows or violence inflicted upon the perineum; (b) priapism which is a symptom of cerebral or descending spinal-cord disease; (c) priapism which occurs after alcoholic and sexual excesses; and (d) priapism which comes on a person in ill health, in whom it is difficult to obtain data as to local injury and causation, and in which cases there is now a tendency to look upon leucemia as the etiological factor.

Few definite statements can be made as to the prognosis of priapism of any form. In those cases in which injury to the corpora cavernosa or thromboses can be made out, incisions may greatly expedite the cure. The existence of spinal disease necessitates a guarded prognosis. In very much run-down

neurasthenic subjects, in sexual perverts, and those suffering from leucemia, the chances are that the priapism will be very persistent, and relapses are apt to occur.

In the author's opinion nothing like a routine method can be laid down. This much, however, can be stated with emphasis: Chloroform narcosis has failed in every case in which it has been used; ice usually does more harm than good; electricity has no value and may even be harmful; and leeches to the number of sixteen and forty have failed to produce any amelioration in the condition of the penis, and have been injurious in their depletory effects.

The speaker said that his own preference in dealing with these cases is to resort early to moderate and tentative incisions into the most turgid part, or into parts which are the seat of continuous pain, or into nodular masses in all probability the result of traumatism. It is always good practise in priapism to use either the potassium salt alone or in combination with mercury, when a history of antecedent or present syphilis is elicited. A number of cases are on record in which the condition was relieved by potassium iodide. Bromide of potassium, chloral, belladonna, and morphine may be of benefit, especially during paroxysms. Hot baths, hot and cold spinal douches, sponging with hot water, spinal cauterization, anodyne poultices, and perhaps ice-bags, may be found beneficial, but the latter must be guardedly used. Any ephemeral or systematic disorder should receive appropriate treatment.

Dr. Taylor reported two cases illustrating the points made in his paper.

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*A NEW METHOD OF REMOVING POLYPOID GROWTHS FROM THE BLADDER.*

GEORGE CHISMORE (*Journal of Cutaneous and Genito-Urinary Diseases*, July, 1897) publishes a method which he believes no one has hitherto undertaken to remove vesical polyp by. Although his experience is limited to the two cases here reported—purely accidental in the first, entirely intentional in the last—the immediate results (checking a dangerous hemorrhage and relieving an over-distended bladder) were so easily attained that, whether the cure proves permanent or not, he believes the procedure of sufficient value to bring it to attention and to recommend it for trial.

The principle on which the operation is

based is that of catching, by aid of the suction exerted by an aspirator attached to a litholapaxy catheter, or other suitable tube, the growth, or growths, in the eye of the instrument, when by gentle traction and slight to-and-fro movements they are torn from their attachments and drop into the reservoir of the wash-bottle.

To accomplish this he uses an ordinary curved litholapaxy tube, of available size, to empty the bladder, then couples on his evacuator, which is so shaped as to fit the hand and give one full control of the point of the catheter. He then injects two or three fluid-ounces of a borated solution as hot as can be borne, to which cocaine is added if needed to control the pain; then systematically go over the interior surface of the viscus with the point of the catheter, at the same time compressing and relaxing the bulb, trying by touch to locate the site of the growth. If the outflow is arrested when the point is in contact with the bladder-wall, the instrument is held stationary a few moments, the hand holding the bulb, regulating the amount of suction exerted, then gentle traction accompanied by a slight sawing motion is made.

If the occluding body be a polypus it will soon give way and quickly find its way into the reservoir. The author finds it easy to determine whether it be the healthy wall of the bladder that is caught or not, by the absence of the well-remembered thud and the evidence of pain that all who have done a litholapaxy will recall.

When a polypus is caught the check of the outflow is not nearly so abrupt; there is no expression of pain from the patient, the point of the occluded catheter is somewhat movable, and not apparently glued to a fixed spot; besides, in cases of pedunculated tumors the stoppage may take place while the eye is not nearly in contact with the bladder-wall. It is hard to convey in words the slight variations in the sense of touch, but he was astonished and delighted in his last case to observe how easily and clearly he located the site of the growths, and with what ease the tumors were brought away.

The writer supposed from his first case that the growth would have to be large enough to fill completely the eye of the catheter in order to make the suction effective; the second, however, clearly demonstrated that such was not the fact. There were many small polypi entirely too little to close the eye of the No. 25 F. catheter which he used. Either their bases must have been ses-



sile, several caught at once, or some alterations have taken place in the mucous coat from which they sprung that enabled the suction to exert sufficient power to drag them away.

For reasons that are obvious no estimate of the ultimate results of such an operation can be predicted, but it is contended that enough has been shown to make recourse to this simple and painless procedure justifiable in cases of emergency, where necessary time to remove a patient to hospital, or other preliminaries to more radical measures, are to be gained, particularly in those cases where the bladder is filled with clots, and retention from overdistention is present with its attendant suffering.

#### *A CASE OF TOTAL EXTIRPATION OF THE BLADDER.*

TUFFIER reports a case of total extirpation of the bladder, for an extensive tumor of that organ, followed by recovery.

The patient, a man forty years of age, had had urinary symptoms for three years, beginning with a sense of discomfort in the hypogastrium, which was soon followed by frequent and painful urination, which later became almost intolerable. Hematuria first appeared at the end of two years, since which time there have been abundant hemorrhages at irregular intervals. Patient's general condition was fairly good at the end of the first year.

On admission there was intense pain in the hypogastrium, radiating to the testicle. Suprapubic incision revealed a hard tumor with friable surface involving the walls of the entire left side of the bladder and the mucous membrane of the organ throughout. Free hemorrhage followed manipulation. The bladder was tamponed for twenty-four hours, and then drained for three weeks. The bladder was then extirpated. It was first tamponed with iodoform gauze. The abdominal incision was then lengthened, and it was further enlarged by a lateral incision on either side extending to the inguinal canal; the adhesions resulting from a former operation were broken down. The whole surface of the bladder was easily freed by the finger as far back as the points of entrance of the ureters. The bladder was then drawn upward through the wound, its neck was isolated by the finger, and the inferior vesical arteries and ureters were clamped and cut. The bladder being drawn high up through the

wound, it was possible to dissect off its peritoneal investment, and to free it thus from its attachments; after which it was removed. The clamps were then removed from the ureters. A catheter was introduced into each, and secured by a single suture passed through the wall of each ureter. The sutures were left long. A small incision was then made into the rectum on either side, and the ends of the ureters, together with their catheters, were led through these and out through the anus. The sutures were attached externally to a rod, to prevent their ulcerating into the rectum. The cavity left by the removal of the bladder was tamponed with iodoform gauze and the abdominal wound was closed except at its lower portion.

The tumor proved to be an alveolar epithelioma. The patient's condition was critical on the second day, but thereafter improved. The packing was removed on the third day. At this time the urine was normal in quantity. On the sixth day the urine flowed through the abdominal wound as well as through the catheters. These were removed on the following day, and siphon drainage was placed in the abdominal wound. There was a fecal discharge through the abdominal wound on the ninth day, which persisted for two days and then ceased. On the twenty-first day a phlebitis of the deep veins of the right leg occurred, but did not seriously retard the convalescence, which was uninterrupted from that time. In the sixth week the patient was up and about; and thereafter he was well and practically free from all symptoms.—*Boston Medical and Surgical Journal*, June 24, 1897.

#### *ADENOID VEGETATIONS.*

E. O. Sisson in *The Laryngoscope* for June, 1897, gives a careful *résumé* of the subject. In regard to the treatment each operator has his own favorite method, and each one undoubtedly possesses advantages. The author simply outlines briefly the steps in the operation he makes, and which has yielded him very satisfactory results. That vexed question as to whether an anesthetic should be given seems to have been about settled by the different authors, they having come to the conclusion that it is best in children to give one: First, because they are unmanageable to a greater or less extent without it, and a more thorough and satisfactory operation can be performed when it is used; second, the danger attending the giving of an anes-

thetic in children is slight, and complete anesthesia is never required. In individuals above puberty so many things arise to modify the question that the operator should exercise his own judgment as to whether a complete removal under an anesthetic or repeated sittings is desirable. Again, the position of the patient during the operation has provoked much discussion, some preferring the sitting, the same as for tonsillotomy; others the recumbent. The latter seems to the author to be the most desirable, for as soon as the operation is completed the patient's head is hanging over the table, and the blood is passing through the nose and mouth, thus avoiding all danger from its running down the trachea. When the child is anesthetized, and the mouth-gag inserted (preferably Denhard's), it is a question of a very few seconds to tear out the larger portion of the growth with the forceps. The author used Gradle's model, or Casselberry's. The former is the one adopted and highly recommended by such men as Mayer and Asch, and is used exclusively in all their adenectomies. After removing the large portion of the growth with the forceps, he followed up with a thorough curetting, using Gottstein's antero-posterior curette. The after-treatment is simple: some efficient and pleasant antiseptic should be used as a gargle and mouth-wash, and the patient kept on a liquid diet for a few days.

*CLINICAL NOTES ON A SIMPLE METHOD  
OF OPERATING ON VARICOSE VEINS  
OF THE LEG.*

ARTHUR E. BARKER (*Clinical Journal*, June 16, 1897) states that having for some time past adopted a method of operating on varicose veins of the leg which has given excellent results, although departing in a measure from the usual routine, it appears desirable to make a note of it in order that others may test it. Its chief merit consists in the fact that no foreign body is left in the wound in the shape of ligatures or sutures, and that it saves much time. The latter point is one of considerable importance, not only to the patient, who is thus saved any prolonged anesthesia, but to the surgeon, who nowadays is called on to do a very great many of these operations, both in hospital and private practise.

It goes without saying that the method is only proper where perfect asepsis can be secured. The leg is first washed, shaved, and carbolicized. Then the saphena vein is

exposed as high as possible in the thigh, preferably at the saphenic opening, as recommended by Trendelenburg, by incision of about two inches long. The vein is then caught above and below by two ordinary serrated Wells forceps, and a piece cut out between them. A sponge is then placed in the wound and the vein is similarly treated lower down in three or four places—*i.e.*, wherever markedly varicose. When all the wounds have been dried, and all bleeding stopped with catch forceps, the latter are removed one by one, and an ordinary white gauze bandage, which has been steeping in 1-to-20 carbolic lotion for forty-eight hours, is applied to the limb in the usual way well below the lowest wound, and is wound round until it is about to cross the lowest wound. The edges of the latter are held together with the left thumb and first finger, and the bandage is carried across them. When the fingers are removed the edges will be seen through the transparent bandage to be coapted very accurately. If this is not the case at one spot or another, a probe slipped under the bandage, through which the edges can be still well seen, will easily adjust the edges, while the gauze is held taut. Then the bandage is carried up the limb, each wound being similarly treated. Over the gauze the author usually lays a strip of salicylic wool, and retains it with firm turns of an ordinary bandage to keep steady, elastic pressure. This dressing is left on until the tenth day, when the wounds will be found to be closed by a linear scar as accurately as if they had been stitched, and only require a little wool and collodion for a few days longer.

The advantages of this method—which is only an application of that which Dr. Crédé of Dresden applies to amputation wounds—are its simplicity, its rapidity, and that the patient has no removal of stitches to look forward to. There is also the advantage that no ligature is left in the wound. Such ligatures occasionally, though rarely, give rise to pain for weeks.

The only point to be specially attended to is the arrest of hemorrhage from collateral vein branches as well as from the main trunk, and even pressure.

Those who become familiar with this method will, the author feels confident, never go back to the more elaborate ligaturing and suturing.

From the patients' point of view, too, there is a great gain, and when told the day after operation that there is nothing further to be

done to the wound except to remove the dressings, they are more than satisfied.

In some cases where patients are inclined to vomit after the anesthetic, a fine ligature may be applied to the upper end of the saphena vein, as the forcing of sickness may break the adhesion produced by the forceps. But such cases are rare, and firm bandaging meets them.

#### *SOME OF THE DIFFICULTIES OF CATHETERISM IN THE MALE.*

Dr. A. KOLLMAN has contributed an article on this subject to a *Festschrift für Benno Schmidt* recently published in Leipzig. An abstract of the article appears in the *Centralblatt für Chirurgie*. The author deals with the hindrances of catheterism under normal conditions of the urethra, with no impediment in the way of urination. He refers them to the pubic symphysis, the middle layer of the perineal fascia, the sinus of the bulb, the prostatic sinus with the prostatic ring, and the trigonum vesicæ of Lieutaud, the most important of which, he says, is the sinus of the bulb. Among the circumstances which may lead to difficulty at this point is unusual sensitiveness of the mucous membrane of the part, contact of the catheter with which gives rise to spasmodic constriction of the membranous portion of the urethra, constituting the spastic stricture of authors. A point of greater significance is the aptitude of the bulbous portion of the urethra with an abundance of folds; and another is an unusual distance between the sinus of the bulb and the entrance to the isthmus.

As regards the folds and pockets of the remainder of the anterior urethra, the author agrees with Dittel and Grunfeld that importance is to be attributed only to the pocket on the upper wall of the fossa navicularis, often connected with a Morgagnian lacuna, and to the little raphé of mucous membrane on the border of the Morgagnian crypts of the pars cavernosa. Occasionally the former is remarkably deep, so that the instrument may catch in it; the latter can hardly prove a hindrance unless a fine flexible instrument is used. The same is true of the excretory ducts of the acinus mucous glands. In the normal condition of the urethra they are minute depressions invisible to the naked eye; under the influence of gonorrhea, however, they may attain a notable size, but never to a size sufficient for

them to constitute an obstacle to the introduction of a rigid instrument. It was by urethroscopy, says the author, and especially by the observations of Oberlander, Neelson, and Finger, that the relations of the mucous glands of the urethra and the pockets and hollows partly connected with them have been made clear within the last few years.

Folds, pockets, and hollows of other sorts capable of hindering catheterism the author regards as very exceptional. He cites a case of Grunfeld's, in which there was an opening in the posterior wall of the urethra, situated about three inches from the external meatus, that led to a submucous passage an inch deep into which an instrument as large as that numbered fifteen on Charriere's scale could be inserted. He adds that a like instance has come under his own observation. On the lower wall of the urethra, in front of the bulb, there was a blind passage about half an inch deep, lined with urethral mucous membrane, and opening anteriorly, which ran parallel with the urethra and readily admitted a No. 23 catheter. He thinks that such diverticula are not to be looked upon as acquired, but as congenital.

In one instance Dr. Kollman has had the opportunity of observing a rudimentary pocket formation capable of constituting an impediment to catheterism, and of a kind that he has not found mentioned in endoscopic literature. This, too, he regards as a congenital formation corresponding in situation to the outlets of Cooper's glands, and the remark is made that in many dissections Henle saw the excretory ducts of these glands marked by little folds and pits. The author suggests that an examination with the urethroscope should not be begun at the bulb and carried forward toward the glans, but *vice versa*, to avoid overlooking certain pockets in consequence of closure of their entrances. He himself uses a special tube of his own contriving, the free end of which is bent obtusely so that injuries may be avoided.—*New York Polyclinic*, June 15, 1897.

#### *A BRIEF CONSIDERATION OF SOME UNUSUAL TYPES OF FRACTURES AND DISLOCATIONS OF BONES LIABLE TO BE OVERLOOKED.*

The following conclusions are reached by MANLEY (*Virginia Medical Semi-Monthly*, June 25, 1897) in a paper with the above title:

1. Fractures, difficult or impossible of demonstration—as those fissured vertically, or those non-displaced through the cancellous tissue of the articular ends of long bones—occur without doubt more frequently than is commonly supposed.

2. In injuries of the limbs attended with unusual or doubtful fracture, nothing can justify the application of violence to demonstrate its presence, as in no event are the principles of therapy altered in them.

3. In this class of cases the patient should be given the benefit of the doubt until, at least, time elucidates it—caution only being observed that the circulation is unhampered and full muscular relaxation is effected.

4. We should never fail to utilize the Roentgen rays as a diagnostic aid when possible, though their use in this direction is obviously limited.

5. Exploratory incision should be ruled out, unless the fracture is of such description as to demand or justify a simultaneous osteoplastic operation.

#### ON SOME SUPPURATIONS OF THE URINARY APPARATUS.

REGINALD HARRISON (*The Lancet*, June 26, 1897) in an admirable paper has selected for consideration some points which seem to arise out of the pathology of certain suppurative processes as observed in the urinary organs in relation to the more modern treatment of surgical lesions and infections as generally practised. He first illustrates his observations by taking the most common, as well as the farthest reaching, cause of suppurations of the urinary organs, occurring in the form of primary gonorrheal infections in the male and the female, and as secondary developments in other parts of the genito-urinary system, as more frequently observed in the latter sex. The advances that have been made in connection with the bacteriology of the urinary organs in reference to the kind and extent of these infections have already led to the most useful applications in the way of treatment. The investigations of Guyon, Janet, Halle, and others of the French school, more particularly as regards the life-history and cultivation of these micro-organisms, are of much interest and importance. The first point that strikes one is that many of the cases spoken of as instances of chronic suppurative urethritis or gleet represent a far more extensive invasion than is generally supposed to be the case.

In this lies an explanation of the difficulty that is not infrequently experienced in bringing cases of this kind to a successful and speedy termination. Many gleets are merely reinfections of the urethra from the bladder, which serves the purpose of a medium for bacterial cultivation. So long as a gonorrhea is confined to the area of the urethra, as defined by that portion of the canal which lies in front of the compressor urethræ, or "cut-off" muscle, the task of successfully combating the infecting suppuration is not usually a difficult one. The disease is within limits which can be readily acted upon by various agencies, administered either locally or by internal medication, and its course is generally limited both in severity and duration. When, however, these boundaries are exceeded and the bladder becomes invaded, it is not easy to prevent reinfection taking place as if from an extraneous source. Hence the disease may be almost indefinitely protracted. Nor is invasion of the bladder in this way uncommon or necessarily indicated by acute symptoms such as would unmistakably draw attention to the occurrence. In most instances of this the prostate is the only part of the urinary apparatus that may show any active indication of contact with septic products, the mucous membrane of the bladder, though harboring them, being singularly insensitive to bacterial influences. That infection occurs in this way may be readily demonstrated. When the bladder has been thus involved the conditions of the urinary organs, particularly during the night, are extremely favorable for bacterial cultivations, a circumstance which may explain the constancy and degree of matutinal suppuration exuded by the urethra, which is a prominent symptom in this class of cases. It is rare, the author believes, for gonorrheal organisms to make their way up the ureters and to invade the kidneys—a fact which is no doubt due to the guarded manner in which these ducts enter the bladder, and the constancy of the downward flow of the urine. That renal infection and urethral inflammation sufficient to cause a pyelitis of the former and a contraction or stricture of the latter can occur has been demonstrated as possible. Some years ago he examined the body of a middle-aged man who died from acute single pyelitis rapidly following upon a first attack of gonorrhea. The ureter of the kidney involved was extremely dilated, a circumstance which was believed to be due to the fact that the patient for some years pre-

viously had been passing renal calculi. The opposite kidney was much congested. Mr. W. G. Nash has recorded a case of strictured ureter which was probably caused in this way. In the female the wide-spread effects of the gonorrheal infection are generally recognized.

The suspicion, however, that the bladder may be infected with micro-organisms should be made a matter of proof, and this can generally be done. For this purpose care should be taken to obtain a specimen of the urine as it exists in the bladder, minus any contaminations it may pick up in its transit along the urethra. The first portion of the urine passed should be rejected as probably containing the flushings of the canal, the balance being separately collected as representing the constituents of what may be called vesical urine. When it is possible a catheter specimen should be obtained, where there are reasons for believing that the bladder is infected. In this way gonococci may be detected in vesical urine in cases of gonorrhea. The mere fact that the urine is shown to contain bacteria does not necessarily imply that the individual is capable of inoculating another with gonorrhea. Where, however, the gonococcus is discovered in the urine or the discharges of the patient, as is not infrequently the case, the author does not think there can be any doubt as to the possibility of its communication to some one else. The bacteriological examination of these secretions may furnish important evidence in determining whether a person who has been comparatively recently infected should be allowed to marry. So long as these conveyers of infection can be detected in the urine or the discharges, so long may we expect that transference of the disease is liable to follow. In these cases of secondary infection of the bladder, caused by extension from the urethra, he has for some time placed much reliance upon the irrigation of the bladder and urethra with antiseptics, as described by Dr. Janet, with some modifications. The object is attained in the following manner:

The apparatus consists of an ordinary hydrostatic bladder-tank, holding about one pint of water, and fitted with a nozzle, to which a No. 8 Jacques' rubber catheter can be attached. The tank is elevated about six feet from the ground, and is filled with warm water containing thirty minims of Condé's fluid to a pint of the water. For lubricating the catheter he uses carbolized vaselin. The patient having emptied his bladder spon-

taneously is placed in the recumbent position, and the catheter is then passed. Before the nozzle of the irrigator is connected with the catheter as it lies in the bladder the fluid is allowed to run off for a few seconds so as to ensure that there is no free air in the tube of the apparatus. Then the connection is made and the fluid is allowed to flow into the bladder by degrees until the patient is conscious of feeling distention. He generally uses from twelve to sixteen ounces for this purpose, allowing it to enter the bladder in jets of about three or four ounces at a time. In this way the feeling of any sudden or extreme fullness is avoided, and the entire area of the mucous membrane of the bladder is unfolded and opened out, and thus comes in contact with the permanganate solution. When a sufficient degree of bladder distention is obtained the catheter is slowly removed, care being taken not to allow the fluid to escape. He then usually lightly palpates the bladder above the pubes with the hand before the patient stands up. This he should then do and proceed to empty his bladder of its contents by his natural efforts. Thus not only is the bladder washed out, but the whole urethra is flushed in a manner that is impossible by any artificial means. As the patient is voiding the contents of his bladder, it is well to direct him to suddenly interrupt the outflow once or twice by pressure with the finger on the penile urethra. In this way the lacunæ of the canal are also distended and flushed by the irrigating fluid. This completes the process, which may be repeated once or twice in the twenty-four hours, until the urine and the urethral mucus are found free from organisms. Most patients after proper instruction will be able to carry out all these details. On the conclusion of each irrigation the patient should rest for a time in the recumbent position. The author has only referred to the permanganate of potash in great dilution as the flushing agent for use in these cases. Half a drachm of Condé's solution, gradually increased to a drachm, in a pint of water, has given him good results. Neutral sulphate of quinine (one grain to the ounce) may also be used. More rarely he has employed nitrate of silver (one-sixteenth grain to the ounce) and perchloride of mercury. The last sometimes produces a great deal of pain, though only used in the proportion of 1 in 10,000. He has no doubt for aborting infections the perchloride is the most effective. When used for the latter purpose in the proportion of 1 in 10,000, and after the solution has

been spontaneously voided from the bladder as in the act of micturition, the bladder may be filled with a strained solution of albumen—say that yielded by one fresh egg—in a pint of tepid or nearly cold water. If this is done and the albuminoid solution voided in like manner from the bladder, any pain, smarting, or spasm that the perchloride solution produced at once ceases. Similarly, a weak solution of chloride of sodium, injected into the bladder after a solution of nitrate of silver has been used for this purpose, not only removes any irritation the latter may provoke, but coats over the inflamed mucous membrane with a thin layer of chloride of silver, which often affords much relief when cystitis is present. Probably there is no better bactericide than nitrate of silver in these cases, but it requires to be used with the precautions mentioned, when good results may be obtained. In this class of cases, where suppuration proceeds directly from infection, the internal administration of bactericides may be advantageously combined with the local treatment just referred to. In rendering the urine sterile and destructive to the life of the gonococcus there are no more effectual agencies than some of those which are derived from the vegetable kingdom. He refers particularly to the volatile oils which are so largely eliminated by the kidneys, such as sandalwood, copaiba, cubebs, and similar drugs. By these it is possible to so saturate the urine as to render the existence of certain forms of bacteria impossible.

The author then notices other varieties of urinary suppurations, which may be best illustrated by certain cases of prostatic obstruction. Though the urine is in these instances usually purulent and charged with bacteria, the latter are not infective in the same sense as those he has previously referred to in connection with a special form of urinary suppuration. On the other hand, it must be remembered that these micro-organisms are readily capable of transference from one individual to another through the medium of catheters and instruments of this kind, and thus they may be regarded as factors in the causation of extensive and far-reaching suppuration in these parts. The principles of treatment in this class of suppurations are the same as those he has already mentioned, subject to certain modifications which he proceeds to notice. Putting aside the consideration of the precise means which these cases often require for mechanically emptying the bladder and thus preventing decom-

position of the urine taking place, the restoration of the secretion to its normal state will be mainly brought about by antiseptics in the manner indicated. The more or less atonic condition of the bladder in these obstructive cases seldom permits us to employ the process of autoirrigation as previously described, and we must therefore for this purpose avail ourselves of one or other of the methods usually practised.

As to the toilet of the bladder: (1) The disposition of the parts requiring ablution; (2) the mechanism employed; and (3) the composition of the cleansing fluid. Most of us will admit that we are disposed to draw our ideas relative to the process of washing out the bladder from the natural state of the parts such as we see in anatomical plates. If, however, we select for our guidance the majority of pathological specimens illustrating the obstructive diseases of these parts, we shall at once recognize the difficulties that beset us in our endeavor to wash out these, as we should do, for instance, in the case of a pint vessel. Take for example, the hypertrophied bladders, with their various saccules, pouches, and dependencies, which are met with in connection with advanced urethral stricture in younger adults and in persons of more advanced age who are the subjects of obstructive prostatic disease. In many of these the bladder is no more like the natural organ than the interior of a glass bowl resembles the section of a coarse bath sponge. The contents of the latter we could hardly ever hope to wash out effectually, though we may succeed in soaking them out. For washing out the bladder he almost invariably employs the hydrostatic tank; it has many advantages over syringes. When the bladder is much fasciculated it should be done in the recumbent position, with the object of opening out the mucous membrane as completely as possible without causing pain, so as to reach irregularities on the surface which otherwise would escape contact with the lotion. When the bladder is much pouched it is a good plan, after filling it and before removing the fluid, to cause the patient to agitate his body from side to side so as to bring any dependencies there may be within reach of the antiseptic. In various ways such as these the process of washing out the bladder may be rendered more searching. For washing out in ordinary cases of bacterial urine he usually prefers boracic acid or the boroglyceride. Condy's fluid and iodoform may also be similarly employed.

The sterilization of the urine by internal medicines is an important adjunct in the treatment of the class of cases which the author is now referring to. It is quite unnecessary to draw attention to the many obvious ways in which the urine may thus be altered. The specific gravity, the reaction, and the composition of this secretion may to a large extent be artificially influenced, and in these directions the course of suppurative diseases of the urine passages may be importantly and favorably acted upon. He has already referred to the sterilizing influence that certain oils and essences, such as sandalwood and copaiba, are capable of exercising in this way. No less marked is the effect that boracic acid taken internally is capable of effecting in controlling bacterial life in the urine. Probably no better proof of this exists than in the results observed in connection with operations on the urethra, such as the passing of catheters and in internal urethrotomy. The late Dr. Palmer, of Louisville, showed many years ago that by the use of boracic acid beforehand the development of urethral rigors and fever under these circumstances was rendered highly improbable, and this has since been amply proved to be the case. Similarly the use of quinine as a prophylactic against urine fever has been shown to be most efficacious; salol and other like drugs are also well recognized as urine sterilizers. Though boracic acid in doses of ten to fifteen grains three or four times in the day is probably one of the most reliable sterilizers, it so often disagrees and causes dyspepsia as to interfere greatly with its use for the purpose. Some years ago the author's attention was called to a preparation called boro-citrate of magnesia, which was described by Dr. Koehler, of Kosten, in Germany, as a solvent for uric acid calculi, and gravel. In the communication referred to it is stated that it is prepared by dissolving boracite, a natural borate of magnesia which is found in Stassfurt, in citric acid. Whether it is actually a solvent for uric acid he is not prepared to say. Whilst testing it for this purpose he found that it frequently had a remarkable effect in sterilizing and clearing up purulent urine and in favoring the expulsion of calculi and gravel by its flushing effects on the urine passages. For the latter purpose he has used it for the last ten years in conjunction with other means for preventing urine decomposition, with considerable effect. He is now in the habit of prescribing it in teaspoonful doses in half a tumbler or so of either warm

or cold water two or three times in the day. We have other means for sterilizing the urine by the mouth. No one method or drug is universally applicable. There is a combination of the salicylate of soda with the benzoate of soda which possesses this power in a marked degree. He has frequently found urine which has been rendered opaque by the presence of pus, and swarming with bacteria, rendered clear in the course of a few days after the use of this preparation. He usually prescribes fifteen grains of both of these salts to be taken together three times a day in an ounce of chloroform water. The hyposulphite of soda in half-drachm doses has also in some instances effected the same object.

The principle of urine sterilization may, however, be extended to other purulent or bacterial conditions of the urinary apparatus. He refers more particularly to some of these chronic suppurations resulting from the formation of abscesses in connection with the prostate and prostatic urethra, where the pus was originally discharged, sometimes against gravity, into the latter canal. These are often most difficult to heal, by reason of the absence of a free and depending opening. Yet, on the other hand, the opening of the perineum and the incising of the prostate to secure free drainage of the discharge is a proceeding that cannot always be undertaken without some degree of risk in elderly subjects. The thorough cleansing of these deep parts by the use of antiseptics in the form of autoirrigation will be found efficacious in many of these cases of chronic suppuration. In some instances of prostatic suppuration it is almost impossible to flush a sinus connected with this part so long as a catheter of any kind is retained in the bladder. On the other hand, this object may be readily effected by the spontaneous contraction of a bladder more or less distended with fluid. In the sinuses, for instance, arising out of tuberculous prostatitis, this method usually proves very effectual. Again, he has resorted to this way of flushing urinary fistulæ with some antiseptic fluid when the primary cause of them has been removed, as by gradual dilatation or after internal urethrotomy. Tortuous routes through the perineum may, by washing out through the medium of the bladder two or three times if necessary in the twenty-four hours, be thus healed.

A few months ago Harrison saw a middle-aged man with a tight stricture in the deep urethra, which only admitted a No. 4 bougie.

In addition there were two chronic perineal fistulæ—one opening in the left buttock and the other by the side of the scrotum—through which almost the whole of the urine was passed at the time of micturition. The patient's condition was an extremely distressing one, as it was impossible for him to pass urine with any degree of comfort except upon a water-closet. The author divided the stricture from within by Maisonneuve's urethrotome. A catheter was then tied in the bladder for forty-eight hours, and on its removal a No. 12 silk catheter *à boucle* was introduced morning and evening. After washing out by means of this in the ordinary way the bladder was finally filled with about a pint of warm boracic lotion, which the patient was required to void naturally in the standing position on the catheter being withdrawn. The fluid escaped as in the ordinary act of micturition with this patient—namely, partly by the urethra and partly through the false routes. The proportion of the fluid coming through the urethra gradually increased, whilst that passing through the two fistulæ grew less daily, and in the course of ten days entirely ceased. This method of procedure he has found from repeated trials to contribute importantly in promoting the sound healing of these sinuses and the comfort and cleanliness of the patient.

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#### IMMEDIATE SUTURE OF THE BLADDER AFTER SUPRAPUBIC CYSTOTOMY.

DE FALACCOS advocates immediate suture of the bladder after suprapubic cystotomy, and thinks it should be employed in almost every case, irrespective of the condition for which the operation was performed or the age of the patient, and refers to numerous successful cases. He prefers catgut for suture material and uses a catheter *à demeure*. He allows his patients to get up at the end of a fortnight as a rule.—*Boston Medical and Surgical Journal*, June 24, 1897.

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#### ACTINOMYCOTIC TYPHLITIS AND APPENDICITIS.

GANGOLPHE and DUPLANT (*Revue de Chirurgie*, June 10, 1897) excellently summarize the knowledge of this subject. As to the symptomatology, the first manifestations of the disease are variable; sometimes a pericæcal or parietal tumor is the symptom common to appendicitis. The germ undoubtedly penetrates with a foreign body.

The stagnation of the intestinal contents in the cæcum favors the localization of the parasite at this point. The intubation is probably long. Müller has reported a case in which the hand was affected showing that the disease had an incubation of two years. Prodromes of the affection are extremely vague—dull pain, localized tenderness, gastro intestinal disorders. The intestinal symptoms are characterized by pain in the right iliac fossa, either acute or dull, sudden or gradual in onset. There is usually marked diarrhea, with the passage of mucus or even dysenteric feces. This diarrhea is persistent, sometimes alternating with periods of constipation. There may be vomiting associated with it. At this period there are usually no physical signs—even tenderness may be absent. After a variable time there is the development of a tumor; the parasite having passed beyond the intestine invades the surrounding tissues without any regard for their anatomical relations. The infiltration is rapid and at first extremely hard; the mass is fixed, and on section the tissues creak. Involvement of the skin is always slow, and even though adherent it may not seem to be inflamed. Usually palpation does not cause pain. Infiltration extends rather toward the surface than toward the deeper parts. Inevitably there follows a softening, usually preceded by pain. The skin becomes violaceous in color. Softening takes place rapidly. The liquid discharged is at first clear, then becomes gray, and contains yellow grains. The walls of the abscess are thick and granular. Fistulæ always form, usually direct, with punctiform external orifices surrounded by a button of granulations. The pus from these fistulous tracts contains the yellow grains. The tumor may be softened in several parts at the same time or consecutively. In the fatal cases the patient rapidly becomes cachectic and there is obstinate constipation. The temperature is rarely high. There is neither lymphatic tumefaction nor ascites.

Regression of the lesions is rare. The progress of the affection is essentially slow. The duration ranges from one to four years, eighty per cent. of cases terminating fatally either by peritoneal or hepatic complications or progressive cachexia. Metastasis to the liver is common and is nearly always fatal. Actinomycosis may reach the posterior portion of the abdomen through the mesentery; this method of evolution is nearly always fatal.



There is a strong predisposition toward mixed infection. One case reported by the authors was attacked by erysipelas; the yellow grains entirely disappeared upon the subsidence of this disease, and the infiltration disappeared entirely. The disease is most common between the thirty-fifth and forty-fifth years, and in men. Infection seems to be frequently carried by cereals.

Diagnosis is extremely difficult in the early stages; indeed, it is impossible to differentiate this affection from ordinary appendicitis. Slow onset, moderate pain, marked and obstinate diarrhea, and slight constitutional symptoms may possibly suggest the nature of the disease. When a tumor is formed, absence of pain, intense induration, normal color of the skin, absence of local hyperthermia are suggestive.

Tubercular peritonitis is readily excluded, since it exhibits disseminated lesions, is associated with ascites, and does not infiltrate the external teguments. Fibromata of the abdominal walls are not accompanied by intestinal phenomena, are oval, oblique, from above downward and without inward, and nearly always painless. They are fixed by muscular contraction and mobile when the muscles are relaxed; usually found in women during the genital period; and the overlying skin is healthy. Sarcomata of the iliac bones ulcerate very slowly from a circumscribed tumor strongly adherent to the bone, and until they attain large size are not accompanied by intestinal phenomena.

When fistulization has taken place the presence of yellow grains in the discharge, the multiplicity of the tracts, their peculiar openings, and the conformation of the cavities into which these tracts open, make a positive diagnosis possible. Tuberculous typhlitis might be extremely difficult to distinguish from the actinomycotic infection. In the former invasion of the abdominal wall by the ulcer is extremely rare.

Gangolphe has reported eleven cases of inflammations of the abdominal walls due to malignant tumors of the large intestine. In addition to the peculiar character of these inflammations due to secondary microbic infection, it should be recalled that intestinal disorders and occlusion or constipation precede the appearance of the inflammatory phenomena, which are localized in the supraumbilical region.

During the period when diagnosis cannot be confirmed medical treatment is indicated. If actinomycosis is suspected, iodide of potas-

sium should be given in doses of from eight to thirty grains. It may be happily associated with arsenic; moreover, the treatment common to mild cases of appendicitis is appropriate. When tumor is formed internal medication is still indicated, and the iodide may be advantageously associated with calomel. Operation should, however, be performed at once, and as far as possible all the infiltrated tissues should be removed. If extirpation is impossible free incision should be made into the indurated tissues. The fistulous tracts should be made to intercommunicate and should be washed out with a one-per-cent. solution of potassium iodide, ten quarts being employed at each dressing. A compress is then applied impregnated with this solution. Neither curetting nor excision of the fistulous tracts is of any service.

#### THE TREATMENT OF REBELLIOUS CYSTITIS IN WOMEN.

ESCAT (*Ann. des Mal. des Org. Génito-Urin.*, February, 1897, p. 132) states that when cystitis proves rebellious to instillations, injections, or washings, curettage through the urethra is indicated. This is extremely serviceable in suitable cases, but should not be employed when there is kidney disease or when the inflammation has penetrated deeply into the bladder-walls. If the inflammation has extended beyond the trigonum, suprapubic cystotomy followed by curettage is indicated. Seven cases of chronic cystitis were reported in which not only was the curette employed but portions which resisted this instrument were touched with the actual cautery. In three other patients suprapubic cystotomy was unavailing. Vaginal cystotomy was, however, followed by cure. In cases thus treated the vesico-vaginal fistula should be kept open for a long time. The following conclusions were appended to this paper:

When a cystitis is observed in which ordinary treatment is unavailing, a very careful examination should be made for disease of the pelvic organs. The urethra should also be subjected to thorough exploration, and the urine should be repeatedly analyzed to detect the presence of kidney disease. When the ordinary means of treatment have failed and it is quite certain that the kidneys are healthy, suprapubic section is indicated, followed by destruction of all of the diseased mucous membrane, and temporary drainage. When the kidneys are diseased or the general con-

dition of the patient is bad, vaginal cystotomy is indicated, with drainage continued for a long time.

#### RUPTURE OF THE BLADDER.

HÖGERSTEDT (*St. Petersburger Medicinische Wochenschrift*, 1896, No. 30; *Centralblatt für die Krankheiten der Harn- und Sex.-Org.*, bd. viii, h. 6, 1897) writes of those rare cases in which the symptoms of the wound of the bladder do not develop for several days after the injury. In his case the patient three days after a fall suddenly experienced, in endeavoring to urinate, agonizing cutting pain in the region of the bladder, and was unable to micturate. The catheter drew a pint of urine containing many red blood-corpuscles. After this the patient was absolutely unable to pass his urine spontaneously, and seven days from the development of the first bladder symptom the patient died of peritonitis. It is apparent that the rupture did not originally involve the peritoneal coat, but as a result of inflammation this structure was so weakened that it was unable to resist the increased pressure incident to the effort at urination. This case and others like it show the importance of examining the urine for blood immediately following traumatism, and if this be found in any considerable quantity, and it is evident from the history of the case that the bladder is probably wounded, the application of continuous catheterization for several days.

STUBENRATH (*Archiv für Klinische Chirurgie*, bd. li, heft 2) has conducted experimental investigations on the elasticity and strength of the bladder and upon the mechanism of rupture, founding this latter study upon a statistical collection of cases in which either operation or autopsy demonstrated the seat or the nature of the lesion. His conclusions are as follows: Isolated traumatic rupture of the bladder can occur only when considerable violence is exerted directly upon this organ, when the organ is at least partly filled with urine. Rupture of the bladder usually occurs as a result of overdistention of the organ. Only exceptionally is it noted in the fixed portions as the result of direct violence. The violence always occurs in the weakest portions, but it is noteworthy that the weakest part from an anatomical standpoint is not necessarily so mechanically. The posterior upper portion of the viscus is usually the seat of tear in seventy out of 154 cases. The cause of rupture in this part of the organ can

be attributed neither to pressure from the promontory nor to the longitudinal direction of the muscular fibers of the posterior wall. Comparatively large spaces between the muscular fibers in this region, and lack of support, seem to be the main causes of rupture in this locality. Ruptures may be multiple. The direction of tear is dependent upon the course of the muscular fibers, not upon the form of violence. The rupture may be complete or incomplete. Experimentally incomplete ruptures are commonly due to force working slowly. These incomplete ruptures prove that the tear is from within outward. At first the mucous membrane gives way, then the muscular coat, and finally the peritoneum.

#### INTRAPERITONEAL RUPTURE OF THE BLADDER.

WALTER (*Vratch*, 1896, No. 46; *Centralblatt für die Krankheiten der Harn- und Sexual-Organen*, bd. viii, h. 6, 1897) states that in the Obuchow Hospital nine cases of intraperitoneal traumatic rupture of the bladder were treated. Eight of these were operated on, seven died in from two to seven days of peritonitis, and two recovered. One case, aged forty-four, was operated on fourteen hours after the fall. A tear two inches long was found in the posterior wall of the bladder. It was closed by the Lembert-Czerny suture. Perineal urethrotomy was then performed, and the bladder was drained for fourteen days. This patient recovered.

The second successful case was a man forty-eight years old, who was operated on thirty hours after injury. The lesions were found in the posterior wall; there was a tear two and a half inches long through all the coats, five inches long through the serosa. The borders of this tear were freshened, and the wound was closed by two layers of suture. Continuous catheterization was employed for three days. The abdominal wound was not completely closed, tampons being placed in the pelvis. After five days this tampon was found soaked with urine. A fistula formed, which, however, thoroughly closed.

#### ACTION OF CHLOROFORM OR ETHER UPON THE KIDNEY.

LEGRAIN (*Ann. des Mal. des Org. Génito-Urin.*, No. 2, p. 191, 1897) examined the urine of fifty-four people after chloroform anesthesia, and of forty-one cases after ether anesthetization. Narcosis in the chloroform

cases lasted on an average fifty-seven minutes, and in the ether cases one and a half hours. There were ten cases of albuminuria and cylindruria after chloroform; fifteen cases after ether. In three of this last series there was preexisting kidney disease. Autopsy was made in two of the ether cases, and profuse hemorrhagic nephritis affecting especially the glomeruli was found. Experimental investigation upon animals gave similar results. Especially characteristic of ether were the strong congestion and multiple hemorrhages in the parenchyma of the kidneys. After chloroform the animals experimented upon did not show glomeruli nephritis with fatty degeneration, or necrosis of the epithelium of the tubules and the extravasations of leucocytes about the glomeruli and into the parenchyma.

The author concludes that albumen is more frequently observed in the urine after ether than after chloroform, but that the nephritis caused by ether is transitory, whilst that due to chloroform is likely to become chronic.

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**LIGATURE OF CAROTID ARTERIES FOR THE CONTROL OF HEMORRHAGE DUE TO PHARYNGEAL ABSCESS.**

At a recent meeting of the Royal Medical and Chirurgical Society CLUTTON (*British Medical Journal*, May 29, 1897, p. 1349) reported the case of a victualer, twenty-eight years old, with a history of having bled rather profusely the day before from an abscess in the pharynx above the right tonsil. After the lapse of a few days the soft palate was divided for the purpose of a complete examination of the abscess. A hole was found passing through the wall of the pharynx into the tissues of the neck. This opening was enlarged and the cavity plugged with cyanide gauze, as it was thought from the character of the hemorrhage that the bleeding might be from the internal jugular vein. During the night following this operation the man bled so furiously that no doubt could be entertained as to the hemorrhage being from a large artery, probably the internal carotid. On the following day the bifurcation of the common carotid on the right side was exposed and an animal ligature applied by means of a stay-knot to the common carotid and its two branches. A saline infusion of two pints was given whilst the wound was being closed with sutures. The wound in the neck healed by first intention, and the abscess cavity in the pharynx was found by digital examination some time

later to have closed. There was no further hemorrhage after ligature of the carotid arteries.—*Journal of the American Medical Association*, July 10, 1897.

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**SUCCESSFUL REMOVAL OF BRAIN TUMOR, WITH PERMANENT RECOVERY.**

ZIEHL and ROTH (*Deutsche Medicinische Wochenschrift*, May 6, 1897, p. 297) have reported the case of a man, sixty years old, who, in the midst of perfect health, was suddenly seized with a peculiar rigidity of the thumb and index finger of the right hand, followed by loss of consciousness for several minutes, but without twitching or convulsion. With the return of consciousness vomiting took place. The gait was somewhat staggering, but there was no paralysis. On the following day the patient had returned to his usual health. Rather more than six weeks later the man was seized with transient tonic followed by clonic spasm of the right hand, without loss of consciousness. After another interval of about the same duration he was awakened at night by severe headache and found himself paralyzed on the right side. In the course of two weeks the palsy of the lower extremities had receded to such a degree that the man could walk, while that of the upper extremities subsided rather more slowly. From time to time, however, the right upper extremity was the seat of clonic spasm, always beginning in the thumb and index finger. At times the entire right side of the body was involved. These attacks were followed by headache, which was absent in the intervals. A small area of tenderness was detected in the right parietal region, which subsequently became edematous. No ophthalmoscopic changes were found. It was learned that the patient had had a chancre at the age of twenty-three years, but secondary symptoms had not been observed. Two or three years before coming under observation he had fallen and struck his head. The use of potassium iodide was unattended with relief, while mercurial inunctions were followed by amelioration of the headache following the attacks of loss of consciousness, although without effect upon the attacks themselves. Memory beginning to fail and the general condition to suffer, trephining was decided upon. Accordingly the motor area for the right thumb and index finger was exposed. The bone was found hard and dense and covered on its surface by

hyperostoses and osteophytes. The dura was covered with a brownish-red mass resembling granulation tissue, a portion of which was adherent to the overlying and eroded bone. The adventitious material was removed, together with the involved bone, and the wound was tamponed and closed. Histologically the material was found to be constituted of round cells. The surgical progress of the case was uncomplicated, but the convulsive attacks recurred, and finally the condition of the patient became so aggravated that a second operation was undertaken at the site of the first, the dura being now opened and a collection of material similar to that found originally removed. This, on microscopic examination, proved to be an angiosarcoma. The operation was followed by right hemiplegia and paraphasia, and impaired sensibility in the right arm. Later, however, progressive improvement set in, with almost complete restoration of function, and this condition was still present more than two years after the second operation.—*Journal of the American Medical Association*, July 10, 1897.

AN EASY AND RAPID METHOD OF FIX-  
ING THE URETERS IN THE INTES-  
TINES WITHOUT SUTURES BY  
THE AID OF A SPECIAL BUT-  
TON; WITH EXPERIMEN-  
TAL RESEARCHES.

In a paper contributed by ACHILLE BOARI to the *Columbus Medical Journal* of July 6, 1897, the writer describes a button which consists of a collar-button with quadrilateral base, which he has devised for the above purpose, and details a number of experiments which gave the following results:

1. The button was expelled the tenth or twelfth day. Fearing, therefore, that the cicatrization would not be complete in so short a time, the author has modified the head of the button, making it less cutting and rounder, in order that the ureter may be longer in effecting its separation.

2. The extraperitoneal route recommended by Chaput and which they followed is very convenient for the grafting of the left ureter upon the descending colon. The operative lesion is not very severe, but the technique of the grafting with the forceps seems clumsy. For this reason the author has tried to simplify it.

3. The first discharge from the rectum occurred in one case in fifteen hours, in the other twenty-four hours, after the operation, and was of small quantity (25-30 cubic centi-

meters); while the others succeeded them with an interval of two to four hours, and a mean quantity of 100 cubic centimeters. This causes him to think that the bilateral graft at a single operation is dangerous, because in these cases during the first fifteen to twenty-four hours the organism will probably be exposed to dangers from uremia, either from suppression of urinary secretion or prolonged stagnation thereof.

The graft is made upon the rectum or the colon by proceeding in the sacral way. Although the experiment guarantees the success of the operation, nevertheless, when the operation is upon the human subject it is better to make the graft outside the peritoneum, because should it happen to fail then the patient will not perish from peritonitis. At the worst, a urinary fistula will remain, which can be repaired later. By whatever way we proceed, we choose a button adapted to the caliber of the ureter, which is dilatable, invaginate the end of the ureter upon the tube and then fasten it with fine silk, lower the small movable plate until it joins perfectly the inferior one, and then according to the last modification the central portion of the tube has a transverse opening; pass into this opening a steel stylet of proper caliber, which is used to control the button and at the same time compress the cock, thus replacing the forceps. With a needle well mounted with fine silk circumscribe the point of the intestine into which the graft should enter with an oval line of purse-string suture. In this part thus circumscribed, which ought to be neither too large nor too small, make a long longitudinal incision sufficient to allow a large part of the button to pass with a little resistance. This done, locate the button in the intestinal incision with the aid of the stylet transversely to the line of the incision. The operator ties the end of the silk in a surgical knot and tightens it. The whole line of the suture is narrowed into folds and is applied to the central tube of the button.

In this situation the operator, making traction upon the thread, directs the assistant to withdraw the stylet, then the lock is depressed and the button closed. It only remains to make a second knot and the graft is made complete.

Boari compares this maneuver to that commonly made in definitive hemostasis, where one closes an artery by a knot with the aid of forceps. It no longer bleeds, and the operator adds a second knot to hold the first and compress the tissues still more; while by the

first method, which he described in the *Polí-clínico*, vol. 11, C., fasc. 10, 1897, in using the forceps it was necessary to make a suture at separate points, and the use of the forceps was inconvenient. By the last procedure, on the contrary, the operation is done with the greatest facility and rapidity, since it is done in a few minutes. Besides, the intestinal button-hole is with the aid of the stylet applied closely at all points to the metallic tube, so that the retraction of this portion, be it ever so small, from the intestine is impossible, and there is no reason to fear that it will yield.

After having made the graft upon a cadaver, the author tied the end of the intestine and filled it with water, and the water did not escape except by the ureter; even when the latter was compressed by one knot the suture did not allow the water to escape.

The groove which after the first modification he placed in the superior movable plate has great importance: (1) It responds, as experiments have shown him very well, to better closure next to the internal border of the intestinal button-hole; (2) it gives the ureter a larger surface for lateral adhesion, since it surrounds the intestine above the point where it should necrose.

The pressure of the threads upon the borders, which they cause to mortify, causes the button to fall, and when the button escapes through the anus it ought to bear, attached to the stock, the lace of silk which sewed the ureter as well as that which sewed the intestine. This demonstrates that the grafting has fully succeeded. If after the operation has been completed there remains a doubt, we may back up a little zone of intestine upon the ureter by the aid of sero-serous sutures.

In the author's last experiments he has tried to preserve the tissues up to the sphincter either by infixing with the aid of the button (large) the trigone and the openings of both ureters, or by fixing the ureter of one side and leaving around it a little collar of vesico-mucous membrane, which can be fastened above one of his buttons, and fixing it by the aid of a circular lace; but this cannot be done always.

In the large ulcerations of the ureter, in malignant tumors occupying the trigone it is necessary to make the infixation of that portion of the ureter which is sound. This is why he has recourse to artifices which may act as a valve. He has fixed the ureters upon the lower portion of the small intestine eight or ten centimeters above the cæcal valve, and he has sewed the superior portion

of the small intestine by a lateral anastomosis upon the large intestine at a point beyond the valve in such a way that it could be called to defend the kidneys in hindering the regurgitation of the intestinal contents toward the ureter.

If, notwithstanding this artifice, experience should show an excessive frequency of renal infection, with the view of rendering the operation more worthy of being advised, there yet remains to us one precious recourse—the proposition of Giordano to make fixation of the ureters in the rectum and abolish the natural function of the rectum by an iliac anus. This is a half-measure which leaves a deformity, which is, however, more tolerable and less dangerous than that which comes from a double uretero-cutaneous fistula, and which at the outset has the advantage of prolonging the life of unfortunates who are affected with cancer of the bladder. We may yet dream of the creation of an artificial bladder by grafting the ureter upon a portion of resected intestine still nourished by its portion of mesentery; in reestablishing the continuity of the tube by means of anastomosis of both ends, and causing the loop thus isolated to discharge into the urethra as Poggi and Tizonni have proposed, or rather discharge its contents into some point of the colon as Chaput has said. Although those proceedings have not given complete results even to their inventors, nevertheless they contain in themselves, especially the first, the elements of so grand a conception that there is reason to think, if one should modify the experiments, the latter would end in happy results. However, there is always a necessity of having present in the mind beforehand these methods of difficult and grave intervention. It is necessary in the beginning to establish definitely the results of the bilateral graft of the ureters upon the intestines. There would be no recourse to the creation of an intestinal bladder except in case it should be demonstrated that grafting into the rectum, or into the colon, caused with it an infection of the kidneys, or else gave rise to too frequent discharges, which have not been demonstrated.

Even if it should result from experience that the orifices of the ureters with the lapse of time should become stenotic, we shall not yet confess ourselves to be vanquished. The author has thought of a lateral anastomosis of the ureters to the intestine, which would have the advantage of a larger opening to prevent the strictures.

## ANESTHESIA STATISTICS.

According to the Berlin correspondent of the *Medical Press and Circular* of June 30, 1897, GURLT presented the following statistics at the recent Surgical Congress at Göttingen:

For the years 1895-6, 1896-7: For the first year there were forty-four reports, comprising 29,596 cases; for the second forty-six reports, comprising 29,173 cases. The report therefore comprised 58,769 cases. There were 27,025 cases of chloroform anesthesia, with 29 deaths; 19,875 cases of ether narcosis, with 3 deaths; 4,927 cases with Billroth's mixture (chloroform, alcohol, and ether), 996 with bromide of ethyl, 5,890 with chloroform ether—with one death for the whole. The inquiry had been carried out since 1891, and the grand results for the period were 397,593 cases, with 134 deaths—one in 2444. From chloroform the deaths were one in 2,039 cases; from Billroth's mixture, one in 3,870; from ether, one in 5,000; from bromide of ethyl, one in 5,228; from chloroform-ether, one in 7,594; from pental, one in 213. The last named anesthetic did not appear at all in last year's report. The mortality varied a good deal in the different years. Thus from chloroform the mortality for 1897 was one in 1,126; in 1893, one in 4,200. In the first three reports there were no deaths from ether; in the later ones the mortality varied from one in 2,200 to one in 6,700. In the case of chloroform the relative number of deaths had increased during the last five years. As regarded chloroform, the fatalities were generally due to cardiac-paralysis; as regarded ether, pneumonia was generally the fatal factor. More lately kidney affections were observed after chloroform anesthesia, and exanthemata after ether narcosis.

## GONORRHEAL CYSTITIS IN WOMEN.

LINDHOLM (*Centralblatt für Gynäkologie*, No. 21, 1897) closely observed a girl of nineteen under treatment for gonorrhea which had distinctly involved the uterine mucous membrane. She began to complain of pain during micturition. On examining the urine gonococci were detected in pure culture. Through the cystoscope the vesical mucosa appeared very vascular, with superficial loss of substance at certain points. The cystitis was cured by washing out the bladder with warm boracic lotion and injection of a one-per-cent. solution of nitrate of silver.—*British Medical Journal*, July 3, 1897.

## REMOTE EFFECTS OF BONE TRAUMA.

Under this title D. S. FAIRCHILD (*Journal of the American Medical Association*, July 10, 1897) contributes an interesting addition to our knowledge:

The practical propositions involved in this paper are based on inflammation or irritation in bone following injury and the sequelæ resulting therefrom.

1. Resolution, including a complete restoration of the bone to its normal condition, occurs in the vast majority of cases.

2. Resulting in rarefying osteitis, condensing osteitis, or a combined rarefying and condensing osteitis, which may remain as a more or less permanent condition; if slight in degree giving rise to no well marked subjective or objective signs after the process becomes arrested.

3. If the process continues for a period beyond a few months, well marked and unmistakable changes in the physical condition and appearance of the bone will become manifest.

4. A persistent acute or chronic osteomyelitis will also give rise to unmistakable physical changes in the bone.

5. A persistent chronic osteoperiostitis will give rise to thickening of both periosteum and bone of a character that will readily be recognized if the bone is so situated as to admit of easy surface examination.

6. If the products of inflammation in cases of rarefying osteitis or in osteomyelitis become infected with pus-forming microbes, the suppurative process will become plainly evident, except in cases in which the process is very limited, giving rise to a small abscess in the bone which may be indicated only by subjective symptoms.

7. The injury and irritation following may establish a *locus minoris resistentiæ* which may become the seat of tubercular infection with certain definite results. The length of time after a trauma during which this influence may exist cannot be definitely determined, but it may be assumed in the light of critical practical experience and pathological research that the special predisposition will cease to exist as soon as the effused blood is absorbed, and the protoplasmic elements—the products of irritation and inflammation—have been resolved into new bone or have undergone degeneration and absorption—*i.e.*, as soon as the normal nutrition balance is restored. The author does not believe there is any scientific evidence or any practical facts that will bear criticism which will support the assumption

that the *locus minoris resistentiæ* may continue for months or years after all signs of the injury and its immediate results have disappeared.

8. There is no evidence to show that a carcinoma or sarcoma may develop as the result of an injury after the immature bone elements have been transformed into tissue of a normal resisting physiologic type.

#### THE ROENTGEN RAYS IN OSTEOPLASTIC SURGERY.

OLLIER (*Bulletin de l'Académie de Médecine*, No. 20, 1897) points out that, thanks to the delineations obtained from the Roentgen rays, it is no longer compulsory to wait until the patient's death before the actual dimensions and the exact form of newly developed bone can be made out. The surgeon is now able to make an autopsy of such formations on the living subject, and to examine them beneath the soft parts almost as distinctly as if they were directly exposed. Two cases are recorded in which the extent and form of new bone deposited after free removal of necrosed tibia were clearly shown by large skiagraphs. In one of these cases a portion of tibia about eleven inches in length had been removed from the leg of a girl eight and a half years of age; and in the second the patient, who was eleven years of age, had lost about nine inches of the lower half of the same bone. The drawings, taken some time after complete recovery, show in each case the outlines of the regenerated bone, which is less regular in form than that of the sound limb, somewhat uneven on its surface, but distinctly thicker than the opposite tibia. A third case is reported in which the picture produced by the rays showed a very satisfactory development of new bone produced by a long series of transplantations of periosteal and osseous grafts, practised with the object of filling up a large gap (about  $10\frac{1}{2}$  inches) formed after the removal of a large sequestrum in the tibia. The first attempt failed in consequence of necrosis of the graft, which was a portion about six inches in length, of the tibia of the sound leg, and the gap was not completely filled up until after repeated transplantation of fragments of bone from sheep and rabbits, and resection of a portion of the shaft of the fibula. Notwithstanding the failure of the effort to transplant a large fragment from the sound to the defective tibia, Ollier strongly advocates in such cases the practise of direct osteoplasty.

The transplanted fragment, however, must retain its periosteum, for if this membrane be wanting the operation will certainly prove sterile. The healthy tibia, it is stated, is a favorable source for preparing osteoplastic grafts, as this bone speedily repairs any loss of substance. The picture taken by the Roentgen rays in this case shows that the gap formed by the removal of the long piece of bone has been almost completely filled up. Fragments of healthy bone taken from a limb amputated for the results of recent injury form, it is asserted, excellent grafts.—*British Medical Journal*, July 3, 1897.

#### THE UMBILICAL CORD.

A. C. WENTZ (*Pennsylvania Medical Journal*, June, 1897), in an instructive and practical paper on this topic, says the methods of treatment of the cord are almost as numerous as the accoucheurs of the present day. They, however, are divided into the wet or greasy, and the dry or powder dressings. The wet dressings are lard, sweet oil, fresh unsalted butter, petrolatum, etc., in warm climates. The dry dressings are starch, iodoform, boric acid, salicylic acid, powdered acetanilid, bismuth, chalk, talcum, lycopodium, calomel, and others, used separately or one or several combined.

DOKTOR reports his experience relative to the treatment of the umbilicus in new-born infants, and the prevention of infection. In new-born infants the navel forms a columnar projection of the skin, on the top of which the cord is attached, a sharp line of demarcation, the navel-ring, separating the cord from the skin. On its margin are numerous vessels that go to the border of Wharton's gelatin, but do not enter it. When the cord is ligated its tissues lose their viability and must separate and fall away, leaving the wound covered with a living structure. This small wound is especially liable to infection and resultant maladies, light or severe: (1) Because of its condition; it is not merely a wound of the abdominal skin, but also of its walls, and in closest proximity to the peritoneum, which is very susceptible to infection. (2) The peculiarity that three great vessels lie free in this wound. (3) The disproportionately large mass of dead tissue, the remains of the cord. (4) The peculiar tendency to an excessive formation of granulations. (5) The frequency of development of anomalies and aberrations of the umbilicus also predisposes it to disease. Doktor suggests the prevention of

infection by cutting the cord as closely as possible and applying a careful antiseptic dressing, which should not be changed except for good cause. In preference to changing the dressing the bath should be omitted.

The following named physicians have kindly advised the author by letter of the treatment in the various institutions with which they are connected:

Dr. George M. Boyd, of Philadelphia Lying-in Charity: "Cord first stripped and pressure made from umbilicus toward placenta. Placenta knot made about three inches from umbilicus with bobbin; second knot placed one and a half inches from umbilicus; cord severed between knots. Should the cord be a thick one the second knot is not made. Stump held in fingers and before knot is placed the Jelly-Wharton exposed. In some cases to facilitate mummification a third knot is placed half an inch from umbilicus. The stump then has the two knots. The stump is then dusted with salicylic acid one part, starch five parts, wrapped in gauze, and binder applied. With this treatment we do not have suppuration, and the mass comes away usually in five days."

Dr. Charles P. Noble, of Kensington Hospital for Women: "The principles upon which the umbilical cord should be managed are: That it should be protected from infection on the part of the nurse by having her hands sterile when she handles it in the first cleansing or bath, and also subsequently; that it be dried after the first bath or cleansing, and then dressed in a dry, aseptic dressing. Sterile gauze is a very convenient dressing to wrap up the stump of the cord, over which is placed the belly-band. As a powder, bismuth subnitrate, with ten-per-cent. salicylic acid, or simple boric acid, is all that is used. In exceptional cases in which infection takes place and there is a discharge, the discharge is washed away with a peroxide of hydrogen solution, and the powder of salicylic acid and bismuth is applied. The cord usually comes away about the fifth day."

Dr. Barton Cooke Hirst, of the Maternity Department of the University of Pennsylvania, says he cuts the cord, holding it between the second and third fingers of his left hand and cutting with the point of the scissors turned toward the palm of that hand so that he cannot possibly do the child any injury. Before putting on the ligature he strips the cord of superfluous mucous tissue, pinching the vessels meanwhile to prevent hemor-

rhage. The nurse then holds the cord while he ties it firmly with an aseptic silk ligature. In dressing it he uses a pledget of salicylated cotton, put on the abdomen above the cord, on which he lays the stump, and over that another pledget of cotton which covers it entirely. This is held in place by the abdominal binder, and the cotton is changed every day when the child is washed, although any of it which clings to the cord firmly is not disturbed.

Dr. Howard A. Kelly writes the author the following as the treatment in use in the obstetrical wards of the Johns Hopkins Hospital: "Ligation one inch from umbilicus as soon as pulsation in the cord can no longer be felt, about eight inches from the child. For this purpose a double sterile ligature of heavy braided silk is used; the cord is then cut with a pair of sterile scissors between the ligatures. The child is given a full bath immediately after birth, and the cord is then dressed by wrapping it in a piece of sterile linen on which has been spread a little boric acid powder. The dressing is held in place by an ordinary abdominal binder. We make a point of keeping the cord perfectly dry until it drops off, and a dressing similar to the above is applied every morning. For this reason the child does not get another full bath until about the eighth or ninth day, but is simply thoroughly washed every morning by the nurse. They find the cord will drop off under the above treatment on about the eighth day."

With all these elegant aseptic treatments before us, what must be the lot of a poor country doctor, without sterile scissors, ligatures, linen gauze and cotton, hands, and nurse—sometimes only an "old granny" with her catnip tea to assist him. Yet these children do not all die—another evidence that Nature and pure country air are very helpful antagonists against septic poisons. The author's own experience for the last four years in the treatment of several hundred cases, with calomel in warm weather, and calomel 1 part and boric acid 7 parts by weight in cold weather, has been very successful. The method is as follows: After the ligation of the cord about one and a half and two and a half inches from the navel with boiled homespun linen thread, the cord is cut between the ligatures by scissors taken from strongly carbolyzed water. After the child is thoroughly washed and dried, the stump—especially the protruding vein and arteries at the end—the surrounding skin, even into the



groins, are well dusted with pure calomel. A clean old linen or muslin cloth about six by four inches, with a hole cut in the center, is thoroughly filled with calomel and placed on the abdomen. The stump is drawn through this hole. It is then laid toward the chest. The first fold of the cloth is made about one inch below the cord, also turned toward the chest; the second fold is made over this about one-third from right to left; the third fold is made about one-third from left to right. This entirely encases the stump in the calomel-cloth. The dressing is then held in place by the navel-band and safety-pins, pinned in front, for easy examination. The dressing is changed every morning after the child is washed and dried—great care being taken not to wet the stump at any time. By this method the cord, by desiccation, does not drop off until nine to sixteen days have elapsed. The umbilicus is thus thoroughly healed and usually shows no sign of red induration or pus in the fossa. After each bath the calomel, or calomel and boric acid, are applied for one or two weeks longer.

After long, unsatisfactory attempts in various methods, the author finally concluded that calomel, or calomel and boric acid, as above, are the best methods for general practitioners in towns and in the country, among the rich and poor, alike, for the reasons given above, and for the additional reason that calomel is a great antiseptic powder on the skin, keeping the entire surface free from urinous and fecal chafing; they are cheap, easily carried in the obstetrical bag, easily applied, and a teaspoonful is sufficient to supply a two weeks' course of dressing.

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## Reviews.

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LECTURES ON PHARMACOLOGY FOR PRACTITIONERS AND STUDENTS. By Prof. C. Binz. Translated from the Second German Edition by Peter W. Latham, A.M., M.D. Volume II.

London: New Sydenham Society, 1897.

Over a year ago we reviewed with much praise and commendation the first volume of this interesting work by the well known German pharmacologist, Professor Binz, of Bonn. The second volume is quite equal to the first in its quality and quantity. It contains about 450 octavo pages, and chapters from 17 to 31, concluding with a valuable table of the maximum doses which may be administered to adults (which is taken from the German Pharmacopœia), an Index of Remedies, and a list

of authors who have been referred to in the text. This volume consists in chapters upon Tannic Acid; the Vegetable Bitters and the Alkalies; the important Tonics and Alteratives, such as iron, phosphorus, and arsenic; the Mineral Astringents, as represented by bismuth, lead, and silver; and the Antisyphilitics, as represented by mercury and its preparations.

Succeeding chapters then deal with antiseptics, with quinine, with the recent antipyretics, with hydrocyanic acid, the inorganic and organic acids, emetics, purgatives and anthelmintics, oils and fats, irritants and caustics; and finally there is a chapter devoted to substances used for surgical and other purposes. This chapter, with a table of doses, index of remedies, and list of authors, already named, concludes the work.

Many pages are provided with copious bibliographies, which are limited, however, almost entirely to German literature. The book, as we pointed out in reviewing the first volume, is not a distinctly practical one upon therapeutics, and for that matter does not profess to be such. It is a brief summary of our pharmacological knowledge as Professor Binz finds it to-day.

We are sorry that in quoting from literature he has not consulted more authors outside of the German dominions. The volume as it stands to-day is a valuable and interesting one to the pharmacologist or the physician who is interested in the scientific side of therapeutics, but it is not one which the young physician will find particularly useful in the application of drugs to the treatment of disease. Naturally much attention is given by Professor Binz to the action of quinine upon the lower forms of life, and he takes pains to point out that many years before Laveran discovered the malarial organism he expressed a belief that the symptoms designated by the term "malarial fever" were produced by some form of bacteria.

EYE-STRAIN IN HEALTH AND DISEASE, WITH SPECIAL REFERENCE TO THE AMELIORATION OR CURE OF CHRONIC NERVOUS DERANGEMENTS WITHOUT THE AID OF DRUGS. By Ambrose L. Ranney, A.M., M.D. The F. A. Davis Co., Publishers, 1897.

The reviewer is somewhat embarrassed as to the nature of his sensations after the perusal of this book. If the frequently repeated and emphatic statements of the extraordinary and far-reaching effects of eye-strain, manifest or latent, real or artificial, can be accepted as the indubitable expression of the truth and the whole truth, the therapeutics of man-

diseases, both those usually classified as nervous and those that are not admitted by most practitioners as belonging to that category, must be revolutionized. Adherence to other doctrines of causation and the practise of medicine according to laws founded on pathology and experimental investigation become not only out of date but positively wrong.

The book does not admit of detailed analysis. Its defects or its virtues, whichever they are, are too glaring and fundamental, standing out conspicuously from the first page to the last, to make it profitable to criticize an argument or a conclusion here and there. It must be altogether praised or absolutely condemned. If the inorganic diseases discussed are reflex in their origin and continued by a maintenance of the cause, and if that cause lies in a maladjustment of the ocular focus or a want of equilibrium of the ocular muscles, the teaching of this book, too clearly enunciated to be misunderstood, must be accepted as the only rational method of therapeutics; but if we admit that these so-called functional diseases may arise from other causes, such as vicious inheritance, acquired predisposition, irregular habits of living, intemperance, indiscretions of various kinds, probably attended with microscopic anatomical changes, we must conclude that the author's studies in this special line were inaugurated by a mind predisposed to accept partial truths, and that his further researches have been pursued with an enthusiasm that has perverted his judgment and closed his eyes to all adverse opinions.

Lest the reviewer should be considered unfair in his criticism or biased in his opinion, a few extracts from the book are submitted: "Many diseases which are to-day commonly regarded as of bacterial origin owe their development, in my opinion, to some *underlying cause that has impaired the nervous functions.*" "I have never yet encountered a case of typical phthisis in which eye-strain did not exist as a factor (more or less potent, in my opinion, in causing and hastening its development)." "The so-called 'inherited predisposition' to certain diseases is unquestionably based, in many cases, upon some anomaly of the visual apparatus." His views on chorea are thus expressed: "I would assert that clinical experience had demonstrated most positively a *direct causal relationship between eye-strain and chorea;*" on sleeplessness thus: "*Clinical evidence goes to show that a large proportion of subjects affected with persistent in-*

*somnia of long standing suffer from some congenital defect of the eyes themselves or from an improper adjustment of the muscles that move the eyes.*" He believes many chronic and intractable intestinal disturbances are dependent upon eye-strain. Of twenty-six published cases of epilepsy he says: "Four have abandoned treatment almost from its beginning and should not be counted. Of the remaining twenty-two cases ten, or forty-five per cent., may be counted as well (seven being completely cured and three being practically cured); amelioration of the attacks has been afforded by eye-treatment in nine cases, or nearly forty-two per cent.; and no improvement has been observed in three cases—about thirteen per cent." (Among the complete cures is a case of twenty-four years' standing.) A number of cases of nervous prostration and insanity are reported as cured by adjustment of glasses and tenotomy of the eye muscles.

Ranney's methods of diagnosis are interesting. He lays great stress on the phorometer of Stevens, and accords secondary importance to the Maddox rod and strong spherical glass, both of which are in our opinion superior to the diplopia test because they do not displace but deform the image, and do not refract it onto regions of the retina that do not include the fovea; and he has omitted to mention the cobalt glass test, which, in operable cases, is to be strongly recommended for accuracy and for the saving of time. If a patient shows orthophoria at the first examination Ranney is not discouraged, but by a perseverance that can only be commended finally elicits muscular imbalance of degree high enough to warrant graduated tenotomies, one after another, until the muscles are restored (?) to equilibrium and the patient is cured. From an ophthalmic standpoint we might criticize the method of operation. Nowhere is advancement recommended. The only procedure advocated is graduated tenotomy, whereas the practise of other equally credible surgeons—that is, strengthening the weak rather than weakening the strong muscles—is ignored. Again, he fails to discuss the *raison d'être* for the anomalies other than to mention their congenital origin, but believes the entire fault is to be found in a too active muscle rather than a too great nerve stimulation to that muscle, or too little to its antagonist, and submits the reports of cures, supported by numerous testimonials, of the most serious disturbances of the nervous system by

dividing a few fibers, more or less, of one or more muscles at their ocular attachments!

Enough has been submitted to allow the reader to form an idea of the scope of this work and to warn him against accepting the method here advocated of treating the nervous diseases known as chorea, intestinal derangements, epilepsy, nervous prostration, and insanity. We acknowledge that Dr. Ranney has written an interesting book, but we would advise students of ophthalmology and practitioners whose opinions as to the importance of the causal connection of refractive and muscular anomalies of the eye to nervous disease are unformed, or whose familiarity with the subject is limited, that the doctrines taught can be accepted only with great caution; in fact, they are dangerous, and until verified by others had better be avoided.

H. F. H.

**SURGICAL HINTS: FOR THE SURGEON AND GENERAL PRACTITIONER.** By Howard Lilienthal, M.D.  
New York: International Journal of Surgery Co., 1897.

This little brochure of twenty-nine pages represents a number of serviceable cautions and suggestions founded on the writer's personal experiences in the practise of surgery. The hints are all valuable. Thus the advice is given not to operate for chronic tumor without having given antisyphilitic remedies for at least a week. Not to boil non-metallic sutures in soda solution commonly employed for the sterilization of instruments. Always to remove canary birds from a small room in which chloroform is to be administered. To pour vinegar upon the chloroform mask when the operation has been finished. Not to drive trocar and cannula through the skin, but make a small puncture through this structure. Always to open an abscess from without inward. To obliterate vacant spaces by suture. To avoid pinning dressings to the skin when the patient is under an anesthetic.

There is no attempt at consecutive teaching in these pages, and the entire work can be read in ten minutes. It is well worth the time spent upon it, since even the experienced surgeon will certainly find a number of valuable suggestions.

**A TEXT-BOOK OF DISEASES OF WOMEN.** By Charles B. Penrose, M.D., Ph.D. Illustrated.  
Philadelphia: W. B. Saunders, 1897.

This book is forcible and direct. Its author has the faculty of making his meaning perfectly clear in very few words. He has expressed himself dogmatically throughout, and has kept in view with singular fidelity the

purpose he had in publishing this work—i.e., to provide a book for the medical student. The book is to be commended without reservation not only to the student but to the general practitioner who wishes to have the latest and best modes of treatment explained with absolute clearness.

**TEXT-BOOK ON MENTAL DISEASES: FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE.** By Theodore H. Kellogg, A.M., M.D. Illustrated.  
New York: William Wood & Co., 1897.

This is a large volume of nearly 800 octavo pages, written by a medical man who has had wide experience in the management of the insane, chiefly in public and private asylums. It is dedicated to the editor of the *New York Medical Record*, Dr. George F. Shrady, in exceedingly complimentary terms.

The chapters deal with the history of insanity, the statistics, nosology, and etiology of insanity, the etiology, clinical progress and termination of mental diseases, and psychical and somatic symptomatology. The remaining chapters in Part I are devoted to the pathology of insanity, its diagnosis and prognosis, and the treatment of its various forms. In the second part of the book, which deals with special groups and typical forms of insanity, we have chapters upon insanity from organic arrests of development, the various constitutional neuropathic states and neuroses, and a study of the various states of depression, exaltation, mental weakness, and stupor. It may be gathered from this statement of the subjects which are dealt with by Dr. Kellogg that he has written an exhaustive work of considerable importance to neurologists, and particularly to physicians who see much of mental diseases.

**DIE NEUEN ARZNEIDROGEN AUS DEM PFLANZENREICHE.**  
Von Dr. Carl Hartwich.  
Berlin: Julius Springer, 1897.

Dr. Hartwich is, as many students of pharmacognosy are aware, the professor of this branch of pharmaceutical learning in the University of Zurich, and he has brought to the compilation of this book not only the result of much study, but in addition carefully arranged information from other workers in similar lines. Unlike many Continental authors he has not been content with a bibliographical search limited to German literature, but has culled his facts from every available source. With the object of making the work complete he has called to his aid the large manufacturing pharmacists of the world—such firms for example as Christy & Co. of London, and Parke, Davis & Co. of

Detroit and London—and he gives these sources of information full credit for the advantages offered him.

The arrangement of the volume closely resembles that usually followed in books upon medicinal plants. Each drug of great or little prominence is discussed in its alphabetical order, its derivation, varieties, and synonyms are given, and any peculiarities emphasized. Following this part is an addendum discussing matters not included in the main body of the text, and then there follows a most copious bibliographical index, which is perhaps the most useful part of the work. The next section is devoted to a botanical arrangement of the drugs considered; and finally we find an unusually complete index covering many pages. The volume is not intended for the practitioner of medicine, but will find a place in the library of every thorough student of materia medica or pharmacognosy.

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## Correspondence.

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### *LONDON LETTER.*

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.  
LOND.

With the approach of August therapeutics as a rule fade into obscurity and oblivion and remain outcast in the professional wilderness until the holidays are over. This week, however, is an exception to the annual custom, and is notable for a communication of first importance by Mr. Malcolm Morris and Dr. Whitfield of London on the use of Koch's tuberculin in cases of lupus vulgaris. The authors do not claim to bring forward more than some preliminary observations, which besides their intrinsic interest to the profession may also have the good effect of stimulating others to follow their lead. It is matter for congratulation that some one has been found who has not allowed the great expense of the material, nor the difficulty in obtaining a supply adequate either in quantity or quality, to stand in the way of a prompt investigation of its usefulness. As yet it is early to speak of cure, though the results obtained in the initial series of six cases are certainly of the most encouraging nature. Mr. Morris wisely declines to chant the pæan until he has made more extensive and prolonged observations, and until sufficient time has elapsed to assure him of the permanency of the good results that he is able to chronicle

up to date. One great merit of the new tuberculin is the very slight constitutional reaction to injections of ordinary size, and while larger doses do undoubtedly cause considerable constitutional disturbance, the reaction is of a comparatively transient character. This in itself may be regarded as a great advance on the old tuberculin. The results obtained by the authors have been summarized by them in their order of occurrence as: (1) a diminution of the surrounding halo of redness in those cases in which this had been present to a marked degree before the commencement of the treatment—in cases in which there were simply yellowish-brown nodules in a white scar, the injections produced no visible effect at this stage; (2) the next change noticed was a slight depression in the center of the nodules, leading to wrinkling, and later to desquamation of the cuticle; (3) steady healing of all ulcerated surfaces; and (4) slow subsidence of the previously permanent edema of the lips, ears, etc.—in some cases distinct shrinking and even complete disappearance of the nodules was observed. Lastly, in no single case even of the most obstinate kind was the slightest tendency to progress exhibited during the course of the treatment.

Of theories of chlorosis there is no end, and the latest addition to their number, by Lloyd Jones, Research Scholar of the British Medical Association, has at any rate the merit of originality. The term has been so loosely used to cover so many different conditions that, in the absence of any precise definition of what is denoted by the term, it is difficult to take issue with the theory. We certainly agree with the propagator of the new theory that the blood changes in cases clinically grouped as chlorosis do not consist wholly or even principally in diminution of hemoglobin, but that there is a general impoverishment, real or relative, of both hemoglobin and corpuscles. The examination of healthy blood in a large number of cases served to show that in women from puberty to the menopause some degree of general impoverishment of the blood is normal and natural, and has no counterpart in healthy male blood. The condition is evidenced in a greatly diminished specific gravity, this varying rather with the amount of hemoglobin than of corpuscles. Chlorosis, then, is a morbid exaggeration of a natural tendency. It is suggested that this normal decline is in some way associated with the child-bearing function of the female, and represents an anticipatory storage of

nutritive material to meet the increased demands of pregnancy; this is consistent with the well recognized tendency to "fill out," as it is termed, in the years following puberty. The natural corollary of these facts is that chlorotics should tend to greater fertility than other women, and this is asserted statistically to be true. It is to be hoped that society journals will not get wind of these views, or we may yet live to see chlorosis the fashionable craze of a London season. In any case physicians may look forward confidently to extensive practise in determining the specific gravity of female blood. Still what Dr. Jones gives to the profession with one hand he takes away with the other, in his observation of the concurrence of light complexion with low specific gravity and high fertility, as this is a decision that requires no specialist opinion. Dr. Jones ingeniously meets the objection that chlorosis is not a condition exclusively confined to women by suggesting that the low specific gravity in women is due to increase of plasma, while the chlorotic condition occasionally found in the male is due to actual diminution of plasma, so that the blood becomes actually heavy, as he finds it to be. In his treatment of chlorosis Dr. Jones has nothing more original than iron to suggest. We sincerely hope that his further investigations will fail to establish, as he surmises, an autointoxication from the uterus or ovaries, as we have no wish to see oophorectomy or hysterectomy placed on a rational basis in the scientific treatment of chlorosis.

At a recent meeting of the Edinburgh Medico-Chirurgical Society an interesting paper was read on picric acid as a primary dressing for burns. We confess to a feeling of thankfulness that, however satisfactory the method may be, it had not come into use in our student days. We are assured, however, that the hands need suffer no staining, if smeared with vaselin before dabbling in picric acid, and if washed in alcohol afterwards. Certainly we cannot claim hitherto to have discovered any agent that fulfils the primary requirements of a suitable dressing for burns. The method described by Mr. Miles consists of a preliminary cleansing of the part with a weak carbolic lotion, followed by the application of surgical lint soaked in a saturated solution of picric acid (picric acid,  $1\frac{1}{2}$  drachms; absolute alcohol, 3 ounces; water to 40 ounces), with a covering of wool and a many-tailed bandage. He claims for this method that it is painless, but we observe

that chloroform is administered during the dressing, which detracts somewhat from the anodyne virtues of picric acid; also that it is a most efficient antiseptic, so that there is but little discharge and no necessity for frequent change of dressings. Among other minor advantages he regards the astringent nature of picric acid as valuable in allaying inflammation, and in stimulating the growth of epithelium.

The Inebriates' Legislation Committee of the British Medical Association has during the past year been making strenuous efforts to procure improved means of dealing with habitual drunkards. The Government has been urged to invest properly constituted authorities with the power of compulsorily secluding such inebriates, so that they may be brought under some sort of curative régime, in place of running the gauntlet of the police courts. We are glad to see that the Government has expressed an intention of dealing with the matter in the course of this session, but we wish there were not the qualifying condition "if time permits." The committee recommended that such a bill should include: (1) The compulsory therapeutic detention of habitual drunkards after a judicial process, on sworn testimony, and with every possible safeguard for the liberty of the subject; (2) the establishment and management of special homes for inebriates for the poorest, for criminal and non-criminal inebriate offenders; (3) the inclusion of intoxication by any narcotic in the term "habitual drunkenness;" (4) the appearance of voluntary applicants for curative detention before one justice instead of two justices as at present, or before some authorized official; (5) magisterial discretion to award a term of curative restraint in a reformatory or hospital instead of a term of imprisonment in a jail. It is sincerely to be hoped that the Government may be able to enforce all these recommendations, so that the habitual drunkard may be placed into the category of insanity, to which he practically belongs. The existing system under which patients voluntarily place themselves within the control of a licensed Retreat has worked admirably, and has fully justified its compulsory extension to all inebriates. We fear that objections may be raised on the score of expense, which must of necessity be increased in substituting a six months' detention under curative treatment for the existing short period of incarceration.

We learn with no small satisfaction that the

interested agitators who sought to transform the British Medical Association into a gigantic machine for medical defense have failed of their purpose. We can scarcely conceive a more preposterous suggestion than that the articles of association, under which existing members enlisted, should be altered so as to precipitate the whole body of members into every petty squabble of each and every member. Nor have we any sympathy for the ingenious sophistry that would argue such a proceeding to be consistent with the interests and honor of the medical profession. It is, however, matter for regret that the margin of votes taken from the branches on the proposition was not of a more substantial character, as the agitation is only too likely to be renewed at an early date. There can, however, be little doubt that compliance would lead to the withdrawal of very many members from the Association—those who have no palate for trades-unionism in medicine.

There is an element of comedy in the attitude which the profession has adopted with regard to the cognate question of hospital reform. A month or more ago a representative meeting of leading metropolitan practitioners denounced the efforts of the Charity Organization Society to form a central hospital board for the general control of medical charities. The antagonism, however, was directed not so much against a central board as such, as against the effective representation of the Charity Organization Society on the board. Simultaneously the Medical Charities Committee of the British Medical Association, which is the mouthpiece of almost identically the same body of medical opinion, expresses especial satisfaction at the action of the Charity Organization Society. And as each meeting has in succession memorialized the Prince of Wales in furtherance of its own wishes, we should say that probably some doubt exists in the mind of His Royal Highness as to what the profession wants or thinks it wants. The comparative failure of the Prince of Wales Hospital Fund has done much to cool the ardor of the more enthusiastic reformers.

The third volume of Clifford Allbutt's "System of Medicine" has just come to hand. It deals with certain General Diseases of Obscure Causation, Diseases of Alimentation and Excretion, and Diseases of the Stomach, Peritoneum, and Bowels. At present we have not been able to investigate the new volume in more than a most cursory manner, but our

first impression suggests that it is quite equal to its predecessors. An article that will certainly attract general attention is that by Rose Bradford on the General Pathology of Secretion, a subject on which he speaks pre-eminently *ex cathedra*. The article on Gout by Sir William Roberts possesses all the graphic and picturesque literary features that lend so much attractiveness to his writings, while that on Rickets, by Cheadle, is obviously from the pen of a master-hand. In unpleasant contrast to these are the altogether scanty and inadequate paragraphs on diseases of such special interest as osteomalacia, osteitis deformans, acromegaly, and hypertrophic pulmonary osteo-arthritis, by Bowlby. In the chapters on diseases of the bowels will be found an exhaustive article by Treves on Perityphlitis, for which he discards the uncouth name "appendicitis," though fully recognizing the paramount part played by the appendix in the disorder.

Another excellent book, by Lauder Brunton, on the "Action of Medicines," has just been published. It represents in substance, if not in form, the series of lectures to students at St. Bartholomew's on Pharmacology and Therapeutics, and we congratulate them on the good fare provided for them. Throughout the entire volume we notice a judicious blending of fancy with fact, and that happy coalescence of matter with style which makes a work classical and of something more than ephemeral value.

The "invasion" of the medical profession by womenkind spreads apace. At a recent prize-giving ceremony at the Royal Free Hospital, to which is affiliated the London School of Medicine for Women, the Dean—Mrs. Garrett Anderson—announced that the new entries for the year amounted to sixty-two students, making the third largest entry of any metropolitan hospital. This rapid increase contrasts curiously with the notable decrease in the number of male students in the last few years, since the curriculum has been extended to five years. The existing laboratories are no longer sufficient to meet the requirements of this great influx of students, and extensive building is already in progress in anticipation of the October entry. The new buildings are designed on a scale that will compare favorably with any of the existing medical schools. The Conjoint Examination Board still decline to admit lady students to their examinations, but there are not wanting signs of yielding even in this quarter.

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## Original Communications.

### THE VALUE OF KOLA AS A STIMULANT OF THE PARTURIENT UTERUS.

BY H. A. HARE, M.D.,

Professor of Therapeutics and Materia Medica, Jefferson Medical College, Philadelphia.

The drugs that act as direct stimulants to the uterine muscle at about the time of full term, or upon the nervous centers in the spinal cord which control uterine contractions, are very few. Probably ergot is the only one possessing a well defined action of this character. The profession has, however, for many years recognized the fact that

quinine might be used for the purpose of supporting uterine contractions after they had normally originated, or for restoring them after they had been arrested by inertia or other cause. That this drug quinine has not, however, any marked power over the uterus or its nerve supply, and acts almost entirely by a general stimulating effect on the nervous system, seems likely, from our knowledge of its general action and from the results reached in a collective investigation recently published by me in this journal.\*

Some months since Dr. Gundrum, of California, wrote to the THERAPEUTIC GAZETTE

\* "The Value of Quinine as an Oxytocic," THERAPEUTIC GAZETTE.

suggesting the use of kola in uterine inertia. I therefore obtained from Parke, Davis & Co. some of the fluid extract of this drug and placed it in the hands of Dr. B. C. Hirst, the Professor of Obstetrics in the University of Pennsylvania, for trial in the maternity wards of that institution; in the hands of Dr. E. P. Davis, Clinical Professor of Obstetrics in the Jefferson Medical College, for trial in the Jefferson Maternity; and in the hands of Dr. R. C. Norris, for use in the Preston Retreat. The conclusions reached by these gentlemen are found in the following reports:

DEAR DOCTOR:—Under Dr. Hirst's direction, I have used fluid extract of kola in a number of cases during labor at the Maternity. The following results were found, when the fluid extract was administered in thirty-minim doses (one dose):

1. Pains are more frequent and severe, in several cases quite apparent to the women themselves.
2. The women seem much more excitable and demonstrative under the influence of the kola.
3. In several cases an unusual amount of bleeding followed the administration of the drug. In one case there was an adherent placenta. Whether the two last named factors were accidental or not requires more clinical evidence to disprove or prove.

The kola was given both to primiparæ and multiparæ, but only when a natural relaxation occurred in the character and frequency of pains—in other words, when an indication arose for the use of a stimulant to uterine contraction. In all cases only a single dose of thirty minims was given (P. D. & Co.).

Respectfully yours,

WILLIAM SCHLEIF.

N. B.—In only one case was there no effect whatever.

Dr. E. P. Davis sent the following notes:

"In two cases kola was given after labor had begun, and it is impossible to determine what part was played by the drug.

"In five cases from one to two and a half ounces was given each patient in doses of half a drachm every three hours during the day for several days previous to the beginning of labor. In these cases the commencement of labor did not seem to be hastened by the use of the drug, but after pains had once begun they seemed to be stronger, more regular, and the force no doubt continued longer under the use of the drug. In all cases the pains continued strong from the beginning of first stage until the end of labor, there being no cessation in any instance.

"In one case pains began two hours after the administration of kola was begun. The pains here continued strong and regular to the end.

"In one case the first stage began in the evening. Pains gradually grew stronger, although expulsion was impossible on account of faulty rotation (occip.-post.). Pains re-

mained strong until child was extracted. Even under an anesthetic pains continued very marked. This patient received kola for several days before labor in half-drachm doses every three hours.

"In two cases kola was given for two days, when labor apparently began. In a few hours, however, the pains ceased, and have not returned at this writing.

"In one case pains came on, but ceased soon after, and it finally became necessary to induce labor."

Dr. Norris replies as follows:

"I have used the fluid extract of kola in doses of twenty drops, repeated once in one hour, in seven cases of uterine inertia. The first case, a multipara, had very fair uterine contractions for several hours, when they ceased almost entirely. The first stage of labor was about completed. The doses of kola were followed by strong pains and effective contractions. The labor was speedily terminated in a natural manner. I have repeatedly used forceps in similar cases.

"The second case, a primigravida aged thirty, became exhausted toward the close of labor, and the pains were weak and infrequent. Two doses of kola increased the strength, but not so markedly as in the first instance. The other five cases were, I believe, stimulated."

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#### THE TREATMENT OF PUS CASES IN OPERATING FOR APPENDICITIS.\*

By M. M. JOHNSON, B.PH., M.D.,  
Hartford, Conn.

A great diversity of opinion exists as to the technique of dealing with pus cases when operating for appendicitis—especially as to what shall be done with the appendix. In this class of highly infectious cases, including gangrene, perforation, and pus, the writer has had an interesting and highly satisfactory experience. When the diagnosis of an abscess is made, the same care that would be taken in an aseptic case is employed to thoroughly prepare the patient, hands of the operator, and instruments. Pyrozone and an ample supply of saline solution are at hand.

An incision two or three inches in length is made over the most prominent point of the tumor; when the abdomen is entered offensive pus flows out. The operator holds the in-

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\* Read before the Connecticut State Medical Society, May 27, 1897.



cision wide open, while the assistant pours the saline solution into the abscess cavity with a pitcher (the cleanest, cheapest, and best irrigator ever used). Pyrozone is then poured into the abscess and washed out with the saline solution. This process is continued until the abscess cavity is thoroughly disinfected. The appendix is usually easily found, either embedded in an infectious exudate in the abscess cavity or situated in the abscess wall, perforated and gangrenous.

The question is, What shall be done with the appendix, especially when it forms a part of the abscess wall? Our highest surgical authority is overwhelmingly in favor of not removing the appendix, for fear of infecting the general peritoneal cavity. On the contrary, I have removed the appendix in every instance, without infecting the peritoneum. I have always found it a safe procedure, if the abscess cavity is thoroughly *disinfected* before the walls are broken through.

When we have opened and disinfected the first abscess, our work has only begun. We must bear in mind the frequency with which multiple abscesses occur, and continue to break up the adhesions until we have opened one abscess after another, disinfecting as we go. It is evident that to stop with the opening and draining of the first abscess, without touching the others, leaves the patient in about as dangerous a condition as he would have been if no operation were performed. There is no doubt that many deaths occur from a general septicemia, resulting from unopened abscesses as centers of infection. If I found that this method of operating was followed by a general infection of the peritoneal cavity, resulting in death in a large percentage of my cases, I would certainly change my technique; but as long as my percentage is good, and my pus cases are making excellent recoveries, I am justified in holding to this method.

I will relate briefly a case which will illustrate this phase of the subject:

October 5, 1895, I saw E. B., aged fifty-seven. There was a well marked tumor in the right inguinal region, which the attending physician said had been there one week. It was evident that a large abscess had formed, as the result of a perforated appendix. October 6, patient was taken to Water-nook Sanitarium and properly prepared. The next morning the operation was performed. An incision two and a half inches long was made over the most prominent point of the tumor. The cæcum was found drawn well

down into the iliac fossa; the attachment of the appendix was covered with a firmly adherent omentum. The adhesions were broken up and the omentum removed, when was disclosed the fact that the appendix entered the pus sac. Pressure with the finger at this point perforated the abscess wall, and a pint or more of offensive pus escaped. The cavity was thoroughly disinfected with pyrozone, and washed out with the saline solution.

The wall of the pus sac was built around the point of perforation in the appendix; these adhesions were broken up and the appendix freed from the wall of the pus sac. The distal end of the appendix was found adherent to the promontory of the sacrum; this attachment was separated, and the gangrenous, perforated appendix removed. Continuing, two more pus cavities were opened and thoroughly disinfected. The wick drainage was inserted, the incision partially closed, and the dressing applied.

If there is danger of peritoneal infection as a result of breaking up adhesions and stripping the appendix out of the abscess wall, this case afforded all the conditions necessary. Theoretically, this patient should have died from a general septic peritonitis in forty-eight hours. The fact is the patient made an uneventful recovery, and returned home in three weeks from the day of the operation, and has enjoyed good health and worked regularly since.

In the case which I will now relate we have all the conditions of the last one, plus a general septic peritonitis and acute gastritis. As this case made a good recovery, it is worthy of consideration.

On the evening of October 3 I saw N. M., who during the day had suffered from colicky pains, and had vomited. There was no localization of the pain; the pulse was high. Morphine was administered, and he improved next evening, although severe attacks recurred. The second day the pain became localized in the cæcal region; there was no general tympany; temperature in the rectum 102°; pulse 80. An ice-bag was applied locally, and morphine given internally; next day a calomel and salts purge. There was severe pain, but no muscular reaction on pressure, or tympany, but continued vomiting, which lasted until the time of the operation. Temperature per rectum varied between 101° to 102°; the pulse was low and quick.

On the sixth day Dr. Johnson saw the case and agreed the symptoms were not pressing.

October 10 temperature rose to  $103^{\circ}$ , pulse 100; attacks of pain became more frequent. The ice-bag was continued and another cathartic given. After a second consultation with Dr. Johnson an operation was decided on, despite the objections of the family.

Patient was removed to Watnook Sanitarium on October 11, where he arrived in a collapsed state. It was with difficulty that the rapid pulse could be distinguished. Stimulants and black coffee were administered per rectum, and strychnine hypodermically, as he vomited everything administered by the stomach, owing to acute gastritis. It was owing to this treatment that the patient by the next morning got into a condition to stand an operation, which could be deferred no longer.

He went under ether easily, and Dr. Johnson opened the abdomen. After considerable search among the exudate he uncovered a pus cavity. The adhesions were broken up with the utmost care. During the exploration a number of pus cavities were disclosed and emptied, which seemed to radiate in different directions and showed no communications. On further search, deep in the pelvic cavity, the remains of the appendix were discovered; and after further manipulation a flat membrane, the remains of the appendix, was brought to view, which showed a ragged opening and had been adherent to the cæcum. The free wall was ulcerated away entirely, and a patch of the attached wall was also gone; the exudate was very extensive. The wound was partially closed after thorough disinfection.

At the time of the operation the patient was suffering from acute gastritis and general septic peritonitis, besides the appendicular condition just disclosed. Three days after the operation the cæcum perforated and emitted much fecal matter. A profuse flow of yellow serum continued from the wound during the exudative stage of the peritonitis. No intrusion was made into the peritoneal cavity beyond what was necessary to remove the appendix and open the surrounding pus sacs. Frequent irrigations and free drainage were continued. The perforation closed spontaneously. The patient made a good recovery and went home six weeks after the operation. The final good result in this case was due to the thoroughness with which the multiple pus sacs were opened and drained, and the infectious appendix removed.

The expression of the opinions of our most eminent surgeons (*Annals of Surgery*, June,

1896) on the question of removing the appendix in pus cases is strongly against it. McBurney says: "There are certainly some cases, not few in number, in which the appendix is so deeply embedded in the wall of the abscess, or so difficult to define at all, that to insist upon its discovery and complete removal would be to incur quite unjustifiable risk."

Dr. Bull says, in cases where the abscess is distinctly circumscribed, with firm walls, containing several ounces of pus, he does not attempt to remove the appendix.

Dr. Senn says it has been his habit for years, in cases of acute appendicitis with extensive suppuration, to simply incise, disinfect, and drain the abscess. He considers a further search for the appendix hazardous, as it often results in a fatal septic peritonitis.

Drs. Halsted and Richardson concur in the opinions expressed. In the very able article by Drs. A. J. McCosh and Forbes Hawkes (in the May number of the *American Journal of the Medical Sciences*) it is stated that in twenty-seven cases of localized abscess the appendix was removed in thirteen cases, not removed in fourteen cases. The indications for not removing the appendix are when the appendix is not clearly seen or felt in the wound after evacuating the pus. Yet in the same paragraph it is stated that when the abscess cavity is thoroughly disinfected with 1:1000 bichloride solution, should a small opening be made into the peritoneal cavity the danger of infecting the general peritoneal cavity is not great, provided gauze drainage is used. Ten cases are then cited where the appendix was removed (in simple abscess) and the peritoneal cavity opened in each case, and all recovered.

The reason for these recoveries is evident, when it is clearly stated that the abscess cavity was thoroughly cleansed with a 1:1000 solution of bichloride. If these ten cases were successful, why not give the fourteen cases where operation was not performed a chance for recovery by a similar treatment?

In the same article it is also stated that in eleven cases of general septic peritonitis nine were operated upon, two not operated upon. Of the nine operated upon six died, three recovered; mortality,  $66\frac{2}{3}$  per cent.

In all these opinions quoted no mention is made of the condition of multiple abscesses. The whole discussion is confined to the opening and draining of one abscess, and leaving the appendix in. A large death-rate must

result from septicemia, caused by the multiple abscesses as centers of infection.

The death-rate in this class of cases will be greatly reduced when a more thorough operative technique is adopted. We are dealing with a pyemic condition, with the gangrenous appendix as the primary cause of infection. It should be removed and all the pus centers evacuated and thoroughly disinfected. Your patient is then safe.

While I believe in free drainage, yet I never make my incision long enough to allow the intestines to escape from the abdominal cavity, but break up adhesions, open abscesses, and remove the appendix, manipulating the intestines as little as possible.

The practice of McCosh and Hawkes, of making the incision as long as possible, allowing the intestines to come out in mass into a towel, with the necessary manipulating and handling in the process of washing and returning with hands but shortly before covered with pus from the abscess, must be a direct method of spreading infection, and the whole procedure must be an unnecessary shock to the nervous system.

In the after treatment the wound is left partially open and is thoroughly irrigated with the saline solution, as long as pus is present. The wick drainage is inserted for twenty-four hours; after this, rubber tubing, with scrim gauze drawn through it, is continued until the wound granulates from the bottom, so that drainage is unnecessary. The wound is cleansed with pyrozone for three or four days; it is then discontinued, as it destroys granulation. No form of opium is ever used following the operation. Strychnine is administered hypodermically for the first three days, and then given internally. The patient is liberally nourished with animal food.

Out of a total of sixty-four pus cases there were sixty recoveries and four deaths.

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*THE RATIONAL TREATMENT OF THE  
CONSTITUTIONAL FACTOR IN THE  
CAUSATION OF HAY-FEVER.*

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BY CHARLES PREVOST GRAYSON, M.D.,  
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So long as almost all the laity and a large proportion of medical men continue to regard hay-fever as incurable; so long as a number of general practitioners persist in the

attempt to cure it solely through the agency of drugs, and a number of rhino-laryngologists seek to attain the same end solely through intranasal medication or surgery; so long, in fine, as the ultimate nature of the disease is imperfectly understood or even regarded with indifference—so long will there be ample justification for brief papers that shall not only insist that the disease can almost invariably be cured, but shall show how this may be accomplished.

A moment's reference to the several trivial theories that attempt to explain the evolution of the disease cannot be avoided; but ferments, micro-organisms, acid nasal secretions, and the like, are all idle speculations that add nothing whatever of value to our means of treating hay-fever. They merely hang upon the skirts of what we positively know of the malady, and serve only to distract attention from the broad therapeutic principles that must underlie its successful management. What we do know of it can be epitomized in a few words. Three factors compose the causative combination; of these, two—the existence of an external irritant and of some intranasal abnormality—are accepted without discussion. As to the third, however, there is considerable diversity of opinion. That it is constitutional or diathetic is generally believed, but whether it is sufficiently well defined to be given a specific name, such as "the neurotic temperament" or the "gouty or uric acid diathesis," or some other equally distinctive title, is still far from being settled. The very fact that opinions concerning it differ so widely as the two suggested titles indicate is evidence of the want of unanimity concerning its precise nature. As a matter of fact, however, names in a case of this kind are merely ornamental, and are, indeed, objectionable, for the reason that they tend to discourage separate and searching study of each case. Even if we grant that a certain number of hay-fever sufferers are unquestionably people of "neurotic temperament," while others, without being at all neurotic, are of a certainty gouty, can we not profitably look beneath these titles and recognize the fact that they designate dyscrasiæ, which are merely different offshoots from a parent weed that is rooted in defective nutrition? Is it not, therefore, to this primary departure from normal processes that we should address our corrective measures? Of what use is it to administer to the neurotic individual the most potent of nervines, or to the gouty patient the best of the antilithics, if underlying

both of these conditions there is a cause upon which none of these remedies exerts a noticeable influence?

There is no need to analyze the expression "defective nutrition" further than to state that it is meant to include all the phenomena of metabolism—constructive, destructive, and eliminative. Disturbance of one of these means disturbance of all, and, as a final observation upon this subject, we may note the fact that with continued absorption of toxic materials from the intestinal tube, or with persistent incomplete elimination of the products of sub-oxidation, it is only a question of time when autotoxemia will provide us with any of the functional neuroses from hay-fever and asthma to chorea and epilepsy.

With this broad conception of the constitutional factor that shares in the genesis of hay-fever, its rational treatment will evidently demand far more than a mere juggle with drugs, be this ever so skilful. The end to be attained is the removal and the checking of further production of every toxic body that can so enfeeble the nerve centers as to render possible this annual vasomotor paresis that affects the intranasal circulation. The merely eliminative portion of this procedure is not a matter of great difficulty, but when we grapple with the problem of preventing further contamination of the blood current we find that it is no trifling task that we have undertaken. And this is so because our success so largely depends upon the intelligence of the patient and the fidelity with which he cooperates with us. To secure this cooperation, and to retain it until the victory is gained, requires both tact and firmness. A sensible patient will not regard it as an evidence of weakness if we confess at the outset our inability to conquer the disease single-handed; and if he be well impressed with a sense of his own responsibility in the winning of the battle, he will seldom have to be coaxed or threatened in order that he shall do his share. I regard it as a means of saving time, temper and reputation to have a clear understanding with the patient, before the first blow is struck, as to what we will expect of him. The very essential restoration of the nose to a state of health is exclusively our own affair, and we can effect that unaided; but when it comes to restoring the patient's nutritive processes to functional perfection, to rehabilitating his more or less dilapidated nervous system, he must join with us in the struggle that it involves. The main battle-ground is to be his own gastro-intestinal tract, and, as he is to be

the one sentinel throughout the conflict, much depends upon his constant vigilance and his strict obedience to orders.

One more word regarding the character of our enemy and we will abandon this figurative strain and descend to formal English. It is a host of hygienic blunders and, perhaps, wilful bad habits that we are to meet and overcome—self-indulgence (a term covering a multitude of sins), irregularities connected with the patient's hours for meals, for work, rest, and play, indiscretions of diet, lack of exercise, objectionable fancies in matters of clothing and bathing, and, finally, vicious excesses—alcoholic, narcotic, or sexual. All these make quite a formidable array, and they are to be subdued not by any single brilliant bit of strategy, but only by a prolonged and unrelenting struggle that requires immense patience and determination. In considering the ways and means, I make it a rule in my lectures at the University of Pennsylvania to enter quite thoroughly into details,\* but in these columns this is uncalled for, and I have only to emphasize certain points that I regard of special interest and importance.

The accurate adaptation of the diet to any inherited or acquired morbid state that the patient presents is one of the first essentials. It is not enough merely to reduce the starches and sweets if he be neurotic, or the nitrogenous foods if he be gouty—a shallow routine would dictate that much; but the age, the sex, the occupation, the whole environment of the patient must be separately studied and provided for in the dietary scheme.

In the closest possible association with the regulation of food is that of exercise. By the majority of physicians scarcely anything is prescribed with less intelligence, with less apprehension of its possibilities for good or evil, than this agent. Judiciously advised, with careful reference to the condition and needs of the patient, it is worth all the drugs in the Pharmacopœia. Iron is, indeed, a veritable specific for these cases of nervous and muscular asthenia, but it should be prescribed in the form of dumb-bells. Is it not an egregious folly to prefer the temporary and deceptive benefits of strychnine to the permanent and real ones that attend the proper use of the muscles? Is the passive cutaneous leakage that transpires in the hot-air chamber of a Turkish bath establishment to be compared in therapeutic value to the

\**University Medical Magazine*, July, 1896.

natural and healthful stimulation of the sweat glands that accompanies active exercise? I believe in nothing more firmly than that if a man takes care of his muscles his nerves will take care of themselves. And yet there is no closing our eyes to the fact that, to the average man, exercise is distasteful, is hard work, yea, even drudgery. It requires all the eloquence we possess to convince him, first, of its necessity, and then to persuade him to adopt and adhere to it. We are not, therefore, to be content with lightly telling him to "take a little more exercise," to walk where now he rides, or, in these days, to buy himself a wheel—and then to leave the manner of its use to his own unenlightened discretion. The more stress we lay on this portion of the treatment, the more explicit we are in our instructions concerning it, the more will the patient be impressed with its importance and the necessity for doing what he is told. In brief, then, it is in the skilful blending of diet and exercise, and their application in proper proportions to each of these patients, that we have the one rational and reliable method of removing the constitutional factor that is so active in the causation of hay fever. Within a reasonable time the digestive tract is restored to a state of sanitary purity, general nutrition is established upon a firm foundation, and the previously unstable nervous system, steadied and invigorated, is enabled to resist such disturbing influences as once proceeded from the contact of atmospheric irritants with the hyperesthetic pituitary membrane; the vasomotor centers resume their domination over the nasal erectile structures, and the distressing phenomena of hay fever are known no more.

Of course, that which I have written here concerning diet and exercise applies with equal force to both sexes and all ages. Certain modifications, it goes without saying, are to be made with respect to differences in sex, age, and occupation; but the essential idea is to put the patient upon a course of strict training that will bring out all his capacity for self-denial and self-help, that will effect a most salutary change in his whole *morale*, and that will so completely remove the hyperesthesia of the nasal sensory nerves as to make them contemptuously indifferent to, even unconscious of, a species of irritant that once sufficed to throw them into a state of violent commotion. There is nothing brilliant, it is to be confessed, about this method of removing the constitutional factor, but for what it lacks in brilliancy it more than makes

amends in certainty. It is, often enough, slow and tedious, but to patients possessed of grit and determination it brings a sure reward. It penetrates to and combats the very beginnings of pathogenesis, and with this fact in mind we can scarcely be over-confident in anticipating and prognosticating success.

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*SENECIO AUREUS AS A HEMOSTATIC IN  
CAPILLARY HEMORRHAGE.*

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BY F. GUNDRUM, M.D.,  
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In the spring of 1871 I was consulted by a gentleman whose case is as follows:

CASE I.—Mr. B., aged forty; native born. His occupation up to ten years ago was that of a farmer; since then he has followed the carpenter's trade. His health had always been good. Has never used alcohol in any form.

About six months ago he was taken with a dull pain in the region of the left kidney, which was soon followed by red-looking urine. He consulted his regular physician, who diagnosed it hematuria. He was treated for four months, but getting no better a second physician was called into the case, and the two treated him for two months longer, without the least benefit; on the contrary, he was losing more blood and had lost much of his strength. For the last two months he had been unable to do any kind of work. On a careful examination I reached the same conclusion as to the nature of his difficulty as his previous medical attendants, viz., hematuria. I put him to bed for a while, gave him all the remedies recommended by the text-books and current medical literature—in little, moderate, and big doses—with the same success that my predecessors had. If any change had taken place during my six weeks' treatment it was certainly for the worse.

About this time a neighboring physician made me a friendly call, and I related the case to him and asked him if he knew of any remedy that was likely to help my patient, telling him all the remedies I had given him. He said: "Put your patient on a teaspoonful of fluid extract *senecio aureus* three times a day, and you will soon clear up his urine." I knew nothing of the remedy or its therapeutic virtues, but as I had got to the end of my rope I was willing to try it on my patient.

All other medication was stopped, and the patient was given the remedy. In two days

his urine was as clear as spring water; in other words, there was not a red corpuscle to be found. The remedy was continued for a week and then discontinued. The patient, under tonics (including iron), soon recovered his strength and went to work. In ten months hematuria again started, but was again arrested, and has not since returned.

CASE II.—I was asked to take charge of Mrs. D. during her first confinement. She is of medium height, rather spare in build, and while she has never been strong, she has never had occasion to consult a physician. During the first days of the seventh month of her pregnancy I examined her urine, and found a considerable quantity of albumen. She was put on the proper diet and remedies and hygienic conditions. As her term approached the amount of albumen increased. She was finally put on pure milk diet; the skin was stimulated, the bowels kept free, and she was kept in fair condition. She was taken in labor pains April 7, and had a hard, tedious, but natural delivery. Some ominous symptoms presented themselves and I lowered the reflexes with small doses of morphine and atropine, chloral, and inhalations of chloroform. Twelve hours after delivery she had a convulsion, and two more before I reached the house—in less than half an hour—and had a fourth as I stepped to the bedside.

On the fourth day after confinement the urine was free from albumen; on the tenth day patient was out of bed, looking fairly well and feeling comfortable. The flow of milk was abundant, and she had a fairly good appetite.

On the twentieth day after her accouchement the husband brought to me about seven ounces of urine, the color of coffee-grounds, stating it was all the patient had passed since 6 P.M. the day before—making the total amount of twelve hours' secretion. I visited the patient and looked into her condition. No particular cause could be found, and thinking that the *plasmodium malariae* might be at the bottom of the pronounced hemoglobinuria I put the patient on ample doses of quinine for twenty four hours. The quinine brought no improvement, and the urine diminished in quantity and deepened in color. Sodium acetate and digitalis infusion were given, which increased the flow of urine some, but had no effect on the hemoglobinuria.

The patient now commenced to complain of a heavy pain in the region of the left kidney, and in two days we had hematuria added

to the hemoglobinuria, the patient in the meantime becoming very anemic and discouraged. She was kept in bed between blankets, the action of the skin was encouraged, and a strict dietary carried out. I ordered fluid extract ergot, with ten drops tincture of opium, three times a day, and liquor ferri perchloridi three minims, in egg albumen, as suggested by Ewald, three times a day. After effecting nothing in four days with this treatment—the hematuria having steadily increased—the patient was put on the fluid extract of senecio once in four hours. In twenty-four hours the urine was *almost* free from blood-corpuscles, but still showed a perceptible amount of hemoglobin. The senecio was reduced to one drachm three times a day, and iron, quinine and strychnine ordered in proper doses three times a day. Patient gradually improved, and left for her mother's home five weeks afterwards.

In order to show that the remedy has no special or selective influence in hemorrhage of the kidneys, I will give the following two cases:

CASE III.—Mrs. S., aged thirty-six; small of stature; brunette. She had hemoptysis several years ago. Her health has not been good for the last year, having suffered considerably from indigestion. She was taken with spitting of blood on the night of November 6, 1896. I was called about 8 A.M. and found her expectorating a mouthful of capillary blood about once in five or six minutes. She had already taken the usual dose of common salt without effect. She was placed in a semi-prone position in bed, and bags of hot water placed to the feet; the dietary was carefully selected, and opium and ergot ordered. After two days, no improvement having taken place, the remedies were suspended and the oil of erigeron ordered, five minims once in three hours. The bleeding diminished under this remedy, but on the third day it became as bad or worse than ever. I now determined to try the senecio in hemoptysis. I ordered a teaspoonful once in four hours, to be omitted during the night if she slept. There was no more fresh blood after twenty hours' administration of the remedy. The patient died since from acute pulmonary tuberculosis.

CASE IV.—Mrs. J., aged twenty-four; married two years. She commenced to menstruate at fifteen. Menses have always lasted from five to seven days and rather profuse, attended with pain and a heavy, full feeling in the pelvis. Since her marriage she has

become worse in this regard; she now menstruates from seven to ten days, losing twice the amount of blood she did before her marriage.

One to two days before the menstrual period the pain in the back and the heavy, full feeling in the pelvis is experienced, and a mucous, tenacious discharge from the vagina shows itself; then the sanguinous flow sets in quite profusely, attended with considerable pain. After the first two days the pain disappears to a great extent.

Having lost considerable strength and her color, she thought it was time to consult a physician. On examination nothing was found, except the uterus seemed to be somewhat congested, and a slight glairy discharge from the cervix. I ordered ferri et quin. cit. in five-grain doses three times a day, to be stopped three days before the menses were to make their appearance. She was then to take a teaspoonful of the fluid extract of senecio aureus four times a day and to continue it during the whole flowing period. The remedy very much controlled the menorrhagia the first time, the period lasting barely seven days, and the quantity scarcely exceeding that which she lost while single. She continued the senecio every month for four months at each period, when the menstrual flow lasted about five days, and the quantity not above normal.

My friend Dr. B. had used the remedy for many years, and prized it above all others "in bleeding from internal organs." I have used it since 1871 and consider it the most valuable remedial agent in parenchymatous hemorrhage we possess. As it is not an astringent it must bring about the benign results by acting on the vasomotor nerves.

I have spoken with many medical practitioners and never found one that knew of its hemostatic action; hence this short contribution. In conclusion I may say that I sometimes give it in two-drachm doses if one does not suffice.

2011 T STREET.

#### THE POST-OPERATIVE TREATMENT OF SURGICAL CASES.

BY THOS. LEIDY RHODES, M.D.,

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It too often happens in our medical schools that on leaving the operating table the patient passes completely out of existence so far as his relation with the students is con-

cerned. It likewise happens that when in the course of a few years these students assume charge of patients that have been operated upon by the surgeon they are at a loss how to manage the patients properly and how to treat post-operative complications should they arise. The hospital clinic has been a veritable *tableau vivant* to them, wherein the sacred mysteries of the dressing-room have not been invaded. Each part is acted with well studied exactness, and the multitudinous details of prearrangement and subsequent care are lost in the admiration of the brilliant performance. This condition of affairs has resulted in a surgical mortality which is considerably higher in cases operated upon outside of hospital walls, and left to the care of an attendant who is unskilled in this department of surgery, than that shown by hospital statistics, and has led an eminent specialist to remark that the surgeon loses his patients more frequently not through any faulty methods at the time of operation but through the incompetency of the attendant who subsequently has charge of the case. Of late years medical schools have endeavored to change this condition by inaugurating a system of ward class teaching, the students being taken to the hospital wards and the progress of recovery from operation studied at the bedside. Although this is a move in the right direction, the necessary infrequency of the visits of the ward classes cannot result in that thorough capability which is demanded of him who has a serious case in charge, and it is only those who are fortunate enough to enjoy the benefits of a hospital training, and who are in constant attendance upon the patients entrusted to their care, with the opportunities to study and carry out the modern principles of after-treatment, who can be considered perfectly competent in this direction. For the benefit of those who have not been so fortunate as to have this training the writer desires to trace briefly the management of operative cases, with the treatment of possible complications, from the time the patient is lifted from the operating table until he may be considered out of danger and the period of convalescence is fully established.

The patient after operation, the wound having been dressed, has his skin surface thoroughly dried with warm towels, and is enveloped in warm woolen blankets and transferred to his room. The selection of the room which the patient is to occupy during the period of recovery from operation is

an important consideration. It should be large, airy, and well lighted. Its dimensions should be such as to allow sufficient air space for two persons—the patient and the nurse. Carpet should be removed from the floor, and after the floor has been thoroughly scrubbed with soap and water and mopped with a disinfectant, a rug is thrown at the bedside, which will add much to the comfort of the nurse. The bareness of the floor is a safeguard against infection, as there is much less danger to the wound than where the atmosphere is constantly filled with dust from a soiled carpet, an efficient carrier of germs. Pasteur was the first to point out that a room full of dust is a source of great danger, as in the air of a room there are held in suspension particles of organic matter, epithelium, exhalations from the lungs, desquamations from the skin, and floating particles derived from clothing and other sources. All these finally settle on the carpet, are again set in motion by the movements of the occupants of the room, and the dust held in suspension may act as a carrier of septic germs and cause infection in the wound. The air in the room should accordingly be frequently changed, and an open fireplace in which even in warm weather a stick or two may occasionally be burned is a desirable feature of the room, as it promotes ventilation; when this feature is not present ventilation should be carried out principally by opening the upper sash of the window. The younger Gross was in the habit of telling his classes yearly a method of ventilation which was unique in its way, and which he invariably carried out when operating in private houses. At regular stated intervals the patient was wrapped in blankets, and the attendant swung the door of the room to and fro rapidly, which changed the air in the entire room in a few minutes' time. Care should be taken to avoid direct drafts, as the local congestion and inflammations which they are liable to produce may seriously interfere with the satisfactory progress of the case. Steam is the most desirable way of heating a room, and the temperature should be kept equable and as near to 70° F. as possible. In operations on the air passages the atmosphere of the room should be kept moist by steam escaping from the discharge valve in the radiator, or by a kettle of water simmering on a gas-stove.

While thorough ventilation and cleanliness are prime requisites for the sick-room after a surgical operation, much can be accomplished

in this line by the disinfection of the room and contents. The floor, the window ledges and other woodwork, as well as the walls and ceiling when these are not covered with paper, are washed with a solution of mercuric chloride (1:1000), or a solution of carbolic acid (1:20), or of chloride of lime (1:100). The latter two have the advantage of being deodorizers as well as potent germicides, and their frequent use as such will be indicated when the discharges from suppurating wounds are very offensive. There should be no open drain in the room on account of the gases emanating therefrom and the great difficulty of keeping it clean, but much trouble is saved if there be a bathtub and water-closet in a room adjoining, the hygienic state of which should be looked after by a skilled person.

The various medicines, solutions, dressings and other utensils of the sick-room should be neatly arranged on a table in a convenient position and screened from the sight of the patient. No dirty dishes or soiled vessels should be allowed to stand about the room.

While an iron bed is always preferable on account of the ease with which it can be kept clean and precautions can be carried out against the invasion of vermin, a wooden bed thoroughly cleansed will answer as well. The patient should lie upon a moderately firm but elastic mattress, preferably made of hair, and a piece of rubber cloth should be placed across the mattress as a protection against involuntary discharges and possible soiling at the time the wound is being dressed. A folded draw-sheet is spread over the rubber cloth, which can be readily removed when soiled and replaced with a clean one, without materially disturbing the patient. A single bed, open on both sides, is more desirable than a wide bed on account of the ease of access to both sides of the patient, so that his wounds may be dressed without unnecessarily disturbing his position. The bed should stand in the room in such a position as to be accessible from all sides, as instantaneous action may be demanded in some conditions, as in sudden secondary hemorrhage, and a bed in a corner might be a source of delay and danger. Should the bed be low, it may be raised by placing a block under each foot, which will facilitate the nurse's care of the patient. The bed-covering should be light and frequently renewed, as patients are often made uncomfortable by too heavy or too warm bedclothing. That amount which



will be most comfortable to the patient will be the best guide. The utmost care should be observed in arranging the sheet on which he lies, removing the folds underneath his back so as to lessen the liability to bed-sores.

*Position.*—The position of the patient in bed is important, and as a general rule that position which will best conduce to his comfort is the proper one. Comfort must always be recognized as a therapeutic measure of some importance, and the careful arrangement of the patient in a restful position is an item in the after-treatment which will assist materially in obtaining a gratifying and satisfactory result, while a disregard of this particular will often strongly militate against a speedy recovery. But in seeking means to make the patient comfortable, the attendant must not be overzealous nor must he annoy the patient by any meddlesome attentions. Answering every whim of the patient, and changing his position every few minutes, will not only weary the attendant, but will destroy confidence in his capability of properly caring for him.

While the patient may be permitted in the main to lie in whatever position is most comfortable to him, and to change this position frequently at the discretion of the attendant, there are certain postures to be maintained, varied in accordance with the operation performed, which have been found best adapted to the successful treatment of different conditions. In operations on the mouth, throat, and upper air passages the head should be lowered to prevent a possible "Schluckpneumonie," and if the operation be on one side of the mouth or throat—as for example the removal of a sarcomatous tonsil—the patient should be turned on the sound side while being fed, as it will facilitate his swallowing without pain. In operations on the head, neck, and chest, elevation of the upper part of the body is preferable, the patient having a pillow placed beneath his back, and several under his shoulders and head, unless some complication should contraindicate this procedure. In operations on the breast the patient lies partially on her sound side, supported in this position with pillows, and the arm of the injured side is anchored closely to the chest-wall with a binder held tightly with shoulder straps, the forearm being flexed across the chest. In operations on the upper extremity the arm will be dressed in a suitable splint, and will be laid in an easy position on a down pillow placed alongside the body.

After operations on the spinal column it

may be necessary to keep the parts operated upon separated by placing the patient in an extension apparatus, the extension being made from the chin and occiput by a padded ring fitting loosely around the neck, counter-extension being maintained by raising the head of the bed so the body will have a tendency to slide downward. The patient may, at the same time, be placed in a wire cuirass, or plaster cast, to immobilize his body, a trap-door being located over the operative area to facilitate proper care of the wound.

After operations on the thorax, as in paracentesis, thoracotomy, or rib section for empyema, the patient will generally rest with more comfort on the intact side, but should occasionally be turned on the side operated upon to favor drainage. When ribs are fractured, after the ordinary dressings are applied confinement to bed is usually made more agreeable by sitting upright, supported by a padded bed-rest.

After operations for appendicitis and other abdominal and pelvic ailments, and in plastic work upon the female perineum, the dorsal position should be maintained for the first twenty-four hours, the thighs being flexed and supported by one or more pillows rolled firmly, so as to relieve the tension on the abdominal parietes. The first day passed, the patient should be carefully turned on her side. This can most easily be accomplished by rolling the patient over, as an assistant draws the draw-sheet partially from under her. This maneuver will not only change the patient's position, but will bring her to a cooler part of the bed. A pillow is placed between her knees, the thighs still being flexed, to promote her comfort. The writer cannot agree with those surgeons who would keep their patients in the dorsal position, week in and week out, after an abdominal section, in the hope of preventing a ventral hernia by this method. The depression to the nervous system which results from this constrained position is far more injurious than the slight risk run by turning the patient on her side, the abdomen being firmly supported by adhesive straps and bandages. It is frequently noticed that patients who are worn out and wakeful by the strain of the first twenty-four hours, will drop off into a quiet sleep when turned over on the side.

In operations for urethral stricture and vesical calculus, a wooden "spider" is placed across the hips of the supine patient, to remove the weight of the bedclothes. To this wooden frame is loosely tied the tube whi-

conducts the urine from catheter or drainage tube to a partially filled jar of antiseptic solution by the bedside, and the patient is cautioned not to move without assistance lest he disturb this appliance.

After operations on the lower extremity splints—extension or plaster of Paris—are brought into use, the leg being usually raised on pillows, or in case of extension with weight and pulley the head of the bed is lowered so as to get counter-extension from the weight of the body, and sand-bags are placed on either side of the limb to hold it steady, the patient lying on his back. In these cases, in order to keep the bedclothes from pressing on the toes and limb, the wooden "spider" is again brought into use.

In some instances it becomes necessary to place the patient in a rather uncomfortable position to meet the requirements of the case, as for example after the partially successful attempt at reduction of an incarcerated hernia under etherization, and supplementary means are taken to accomplish it by the application of ice and the exaggerated Trendelenburg posture, the body being placed at an angle of forty-five degrees. These instances are few, however, and that position of body or limb which is best adapted to its special treatment is generally the most comfortable for the patient.

*Shock.*—If the operation was a prolonged one, and tedious dissections necessitated the handling and manipulation of organs that are intimately connected with the vital functions, the patient on being returned to his bed will often be in a condition bordering on collapse. He will then have a marked pallor and coolness of the skin, blanched lips, dilated pupils which react slowly to light, the heart's action will be weakened, the pulse feeble and rapid, and respiration will be shallow and irregular. The temperature will be subnormal ( $1.5^{\circ}$  to  $5^{\circ}$  F.), the functional activity of all the organs of the body will be retarded, and the patient will lie in a state of apathy. This is the condition known as *shock*. While these symptoms represent the usual manifestations of shock, they may vary from a mere transient depression of the vital functions to an overwhelming collapse from which there is no reaction, the difference in degree depending largely upon whether the operation involved a vital part and whether the irritation to the sensory nervous system was long continued by prolonged manipulation.

In some cases, instead of the usual torpid form of shock there will be a more active set

of symptoms. The patient becomes excited he throws himself around the bed, cries out, shrieks, and acts like a maniac. This train of symptoms is uncommon, however, and when it occurs the condition is very grave.

As above stated, shock depends primarily upon the peripheral irritation of the sensory nerve tract. As a result of this irritation there is a profound impression on the vasomotor system and there follows a diminution or paralysis of the vascular tone, especially of the arteries, and a later dilatation of all the blood-vessels, as illustrated by the well known experiments of Goltz. By the paralysis of the muscular coat of the smaller arteries the blood-current loses part of the force by which it is propelled, the speed of the current lessens, the blood-pressure diminishes, and the blood dams back into the large visceral veins, particularly those of the abdominal organs. In addition to this the right heart, which is only a highly specialized part of the venous system, becomes overloaded and distended, cardiac action is interfered with, the pulse grows weaker, the vital centers are robbed of needed blood-supply, and the functions of life drop below the normal. While the chief factors in the production of this condition are the violent irritation to which the sensory nerves are subjected under the surgeon's knife, the profound impression on the splanchnic system, and the reflex vasomotor paralysis which results therefrom, shock is distinctly increased and deepened by several accessory phenomena, the most important of which are the dissolution of the blood from the anesthetic as pointed out by J. Chalmers DaCosta, the great and rapid reduction of animal heat occasioned by the conditions and environment of the patient on the operating table, and excessive hemorrhage—the increase in the gravity of the condition usually being in direct ratio to the magnitude of these additional evils.

There can be no doubt, also, that mental emotion plays an important part as a predisposing factor in shock, and in all cases is a powerful element in determining the immediate consequence of the operation. Fright before an operation, and the conviction that the ultimate outcome will be fatal, may leave the nervous system so seriously affected that it is unable to recover itself after the operation is completed. The vital centers may even be so depressed as to interdict operation, and in some neurotic subjects only the most urgent indication, as for example a strangulated hernia, will sanction surgical

interference. The celebrated case of Dessault may be mentioned in this connection: he was outlining with his finger-nail the proposed incision for lateral lithotomy, and his patient expired on the table before the knife was used.

Some persons bear operations well, and come out of the anesthetic with no untoward symptoms. To this class of patients belong those who have by reason of their disease been long confined to bed and have become injured to suffering, and those who by a prolonged influence of drugs have acquired a certain torpidity of the nervous forces, that makes them less susceptible to influences which in other individuals would cause a high degree of nervous excitability. Children and the elderly usually rally quickly from operations, the former from the natural recuperative powers of early life, the latter from the dulled nervous susceptibility incident to old age. The accompaniment of marked hemorrhage in operations upon children, and the presence of organic disease in those past middle life, makes each, however, liable to suffer the effects of operation.

Shock in greater or less degree usually follows every operation of gravity, but even in minor operations on certain regions its effects upon the individual are often noticeable, and indeed may be of any grade of intensity, from a slight, evanescent, and barely appreciable disturbance of nerve force to the most pronounced general depression. The effects of the passage of a bougie, the division of the cord in castration, slight operations on the testes, or on the anal and rectal regions, are well known, and the shock resulting is not uncommonly as severe as that following the more extensive abdominal operations or the section of the thigh bone in amputation. The minor details of major operations are also a prolific cause of shock when due caution is not faithfully observed, as, for example, in performing an abdominal section the pinching of the ovaries in their removal will cause a vast amount of shock. Goodell has on a number of occasions noticed the fall of the pulse when these organs were caught by the forceps.

The maximum of shock occurs almost immediately after the operation, and if the case be uncomplicated with hemorrhage or other serious drawback, and if the patient be properly cared for, he will recover from the immediate effects of the operation after the lapse of a few hours. The existence of complications will lengthen the period of reaction according to their severity.

The indications for treatment are to prevent any further loss of body heat, to replace the amount that has been lost by supplying artificial heat, and to combat the vasomotor paralysis. Necessarily it will be understood that prophylaxis before and during the operation is of the utmost importance in combating the subsequent shock, and if due precautions are taken to prohibit any baleful influences on the patient's nervous system beforehand, and to keep him warm and protect him from being drenched with the various solutions while the operation is in progress, and to administer the anesthetic judiciously, the need for urgent subsequent attention will be greatly lessened. During the operation there is often too much exposure of a vital area. In the hurry of the preparation of the patient for the surgeon's knife, especially in emergency cases, the parts surrounding the operative area are at times unnecessarily exposed, and an antiseptic sheet offers but little warmth to the dangling extremities. Very often the body is wet with the fluids from irrigation of pus cavities, as in an abdominal section for suppurative peritonitis, the proper precautions for draining the fluids from the table not having been taken; or the patient may be soaked in perspiration. Added to this, the enormous abstraction of body heat incident to the evaporation of ether throughout the large mucous membrane surface of the lungs, and the coincident alteration in the blood composition, and we have conditions that favor a signal collapse of vital forces.

To supply warmth, then, is the first consideration. By enveloping the patient in some warm non-conducting fabric—the best of all being a woollen blanket—and surrounding him with hot-water bottles or bags, or hot bricks, we not only prevent any additional loss of heat by radiation, but overcome the previous loss. These bottles, safely corked, are placed external to the blanket covering the patient and located about him in such a way as to avoid the possibility of burning him—*i.e.*, they are placed *around* him, and not *against* him. The nurse in charge should frequently inspect them to see that they do not become misplaced by the restive movements of the patient coming out of the anesthesia. Undue proximity of these hot-water bottles has resulted in deep and painful burns, the patient's thermal sense being obtunded by the anesthetic, much discomfort has been caused, and convalescence has been prolonged for weeks. The writer has in mind a case wher

the temperature dropped so low after operation as to cause some alarm, and the careless placing of hot-water bags produced an angry ulcer reaching from the loin to the calf of the leg, which kept the patient bedfast three weeks after the operation wound had healed; and it was only after convincing him later of the necessity of urgent counter-irritation that a legal suit was avoided. The hot-water bottles may be supplemented by a portable hot-air apparatus consisting of an alcohol lamp and a tin tube which conveys the heated air under the bedclothing. It will be necessary to change the position of this apparatus every few minutes, as the current of air that is established is so heated as soon to become unbearable for any length of time near a single part of the body.

The beneficial effects of the application of external heat will be augmented in large degree by the administration of hot stimulant enemata, six ounces of hot, strong, black coffee being introduced high up into the colon, through a large-sized catheter or rectal tube. This will not only give additional warmth to the body, but will by its reflex action stimulate the flow of blood in the distended abdominal vessels. The head of the bed is lowered to favor the flow of blood to the anemic vital centers in the brain and medulla, and a nurse assists materially in promoting this flow towards the devascularized areas, and in emptying the abdominal vessels, by practising light local massage to the abdomen, effleurage (stroking) and petrisage (kneading) with both hands for ten or fifteen minutes, after which a compress of rather large size is laid over the abdomen and pressure exerted with a circular binder so as to prevent the vessels from again becoming distended. With a view to limiting the amount of work required of the heart, by diminishing the area over which the blood in the body has to be distributed, in serious cases it is well to raise the limbs, surround them with warm cotton-wool, and bandage them rather tightly, beginning at the distal end. This method of bandaging the extremities is considered superior to the plan suggested by an eminent surgeon, of using an Esmarch bandage. The circulation is sufficiently controlled by raising the limbs and the moderately tight application of the cotton bandages, which are always at hand and in sufficient number, and there is the additional advantage of the heat conveyed and sustained by the warm cotton-wool.

Sinapisms (mustard plasters) should be

placed over the cardiac area to stimulate the flow of blood toward the heart and strengthen its beat.

The employment of hypodermoclysis and saline transfusion in the treatment has led to some discussion among surgeons as to the efficacy of these measures in certain forms of shock, particularly in those cases uncomplicated by hemorrhage at the time of operation; and in considering the question whether saline solution should be introduced into the circulation in every severe case, various theories have been set forth to show why only those cases in which considerable blood has been lost will be benefited by these measures, and that in those cases uncomplicated by hemorrhage little or no good is accomplished by the transfusion of fluids. Such, however, has not been the result gained from hospital experience. In cases where profound shock has followed upon minor and bloodless operations, as well as upon operations of gravity, the vascular tone and blood-pressure have been quickly reestablished by the injection of eight ounces to a pint of Thiersch's solution into the circulation. In this connection we may note a recent case in the service of Dr. J. Chalmers Da Costa, in the Jefferson Hospital, where a violent kick in the abdomen, sufficient to lacerate the bowel in two places, left the patient in such deep shock and with such a weak pulse that it was feared operation could not be performed. The intravenous injection of a pint of warm saline solution had a most happy effect, the pulse becoming full and more regular, the temperature rising in corresponding degree. Numerous instances could be cited, both from the writer's experience and in observing that of others, where similar effects have been noticed after hypodermoclysis and intravenous injection in shock following operations, during which the amount of blood lost was so small as not to be estimated.

While the employment of these measures is not advised as a routine treatment in all cases of shock—those of less severity responding to the treatment set forth above—there can no longer be any doubt, from the observations in a large surgical clinic, of the efficacy of these methods in severe cases, whether the condition be one following operation in which an enormous quantity of blood was lost, or whether it be due solely to the profound impression of a bloodless operation.

This fact is not without scientific reason. When it is remembered that in shock the

vasomotor system is paralyzed, and that the blood-vessels of the body are greatly relaxed, and that the blood, although still existing in normal amount, is stagnant in the large relaxed vessels of the internal viscera, it becomes evident that the depression and failure of the vital functions result not from the abstraction of a large quantity of blood from the *body*, but from the damming back of the still existing normal quantity into the widely dilated abdominal vessels. The vital centers, principally those in the brain and medulla, are left without the needed blood-supply to carry on the functions of life in a normal manner. The patient has practically bled into his own vessels. It will accordingly be seen that hypodermoclysis or saline transfusion perform here the same office they do in cases in which a large quantity of blood has been lost during operation. In both instances the vital parts of the body have been depleted, and in both the saline solution has a like effect, supplying to temporarily empty vessels a physiological substitute to contract upon, and affording anemic centers opportunity to be replenished and to functionate.

In severe cases it is advisable to institute these measures at once to bring about reaction, in conjunction with, and not depending alone upon, the simpler means used in the treatment of less marked conditions. As a means to this end we have recourse to several different methods. Transfusion of blood, both by direct and indirect method, is an old procedure that falls short of what was anticipated for it, and is but little used at the present day. Its theoretical usefulness has been disproved by the discovery of Panus, who showed conclusively that defibrinated blood is just as efficient as pure blood for overcoming the effects of hemorrhage, and this paved the way for the modern use of salt solutions, as it indicated that the saline elements are those which are required; and since transfusion of blood has largely been superseded by hypodermoclysis and the intravenous injection of saline solution, clinical experience has proved that the latter methods are even more efficacious in supplying volume and restoring a rapidly failing circulation than is human blood. Another point in favor of salines is that they can readily be obtained and used with much more ease. Of their value in combating shock when not a moment of time is to be lost there can no longer be any question.

During the term of service of the writer as hospital interne there were two particularly

alarming cases of shock following operations in which considerable blood was lost, where instant action was demanded to revive the patients. Both cases were amputations at the upper third of the thigh—one in the service of Professor Brinton, the other in the service of Professor Hearn—and in each case the condition was exceedingly grave, and the patients were undoubtedly saved through the timely employment of saline transfusion.

When should hypodermoclysis be performed, and when saline transfusion? When the case is not so urgent, and when one can act with deliberation, perform hypodermoclysis. When the symptoms are alarming and life is about to ebb, and when seconds must be considered minutes, perform saline transfusion.

The simplest method for performing hypodermoclysis is to fill an ordinary rubber fountain syringe that has been thoroughly cleansed with normal salt solution (0.60 per cent.) made by adding a drachm of table-salt to one pint of boiled water. The water must be sterilized by boiling, and at a temperature of 101° F. when poured into the syringe—it will lose a degree in passing through the tube. At the end of the tube is attached a small-sized aspirating needle, also sterilized by boiling, which is plunged beneath the skin into the subcutaneous cellular tissue of the pectoral region, flanks, thighs, or between the scapulæ. The syringe is raised a distance of half a meter above the surface of the body, and the solution must be running through the aspirating needle while the needle is being inserted, so as to prevent the unnecessary introduction of air beneath the skin. About half a pint is allowed to flow in one place, when the needle is withdrawn and inserted at another site, until several pints have passed into the cellular tissue, which will require a half hour or more to accomplish. The swellings produced by this procedure are rubbed and kneaded until absorption has taken place, which requires about twenty minutes. The point of the needle puncture is sealed with iodoform colloid to prevent infection.

A convenient apparatus for intravenous saline transfusion consists of a cannula, rubber tubing half a meter long, and a funnel. The median basilic vein is exposed, and two catgut ligatures half an inch apart are placed under it. The distal ligature is tied and the vein nicked between the ligatures. The cannula is now inserted into the opening in the vein, and is held in position by tying the proximal ligature. The cannula is filled

with saline solution and is then connected with the tube and funnel, which are also filled with the solution at once to displace the air. The funnel is raised above the part and the saline solution enters the vein. The funnel should be kept well filled by adding more solution as the fluid continues to run into the vein, so as to prevent air emboli from entering the circulation.

The amount to inject depends upon the effects on the patient's pulse, which are noticeable after several ounces of the solution enters the circulation—usually from half a pint to a pint will suffice. In emergency an ordinary glass syringe will answer the purpose of the funnel and cannula. Professor Keen uses the apparatus of Collin, which renders the entrance of air impossible.

These methods of introducing saline solution into the circulation have undoubtedly helped to reduce the mortality of major operations in recent years.

While these measures are being carried out, we dare not neglect the therapeutics of shock in a different manner. In the selection of the proper drugs to administer we are met with the contentions of a number of observers, but in the writer's experience no drugs have acted so well as ammonia, alcohol, and atropine, mentioned in the order of their administration. They are given in very small doses, and at short intervals, until the pulse improves, the skin assumes its accustomed glow, the temperature rises, and the brain becomes more active.

As shock finds its expression in a vasomotor paralysis, the therapeutic indications are to counteract the effects of this condition.

The patient is apathetic and often nauseated after the anesthetic, and is unable to engage in the effort of swallowing solutions which would make the stomach more rebellious, so the administration of medicines by the mouth is out of the question. As the immediate effect of the drugs is desired, the medicines are most advantageously given by subcutaneous injection. If the case be extremely serious and prompt intervention is demanded, the drugs should be injected directly into a vein, preferably at the bend of the elbow, as the veins in this region are large and superficial and easy of access. The median basilic is usually selected for this purpose. The ammonia and alcohol are preferably administered together, as each of them being a diffusible drug and having its own special action on the circulation, one reinforces the other, and hastens the effects on

the system. The combination exists in the spiritus ammoniæ aromaticus, which is administered hypodermically in half-drachm doses every fifteen minutes until its effects are noticeable. The ammonia will act quickly and cause a rise in the arterial pressure, due to its action upon the peripheral vasomotor nerve fibers, and upon the muscular fibers in the coats of the arteries. The alcohol will be a direct stimulant to the rate as well as to the force of the heart's beat—so that there will be a direct action on the circulatory tract where it is failing. As the effects of both the ammonia and alcohol are fugacious, and their virtue lies almost solely in the rapidity of their action, it will be necessary to reinforce them with hypodermics or a more decided and more permanent vasomotor stimulant, namely, atropine sulphate, which is also given hypodermically from the start in doses never greater than  $\frac{1}{160}$  grain, and repeated at half-hour intervals until the patient has reacted from shock. Large doses at more frequent intervals have a tendency to invite a subsequent depression. The atropine produces a rise of arterial pressure by stimulating the vasomotor center, and is the most powerful vasomotor stimulant at our command, as proved by the experiments of Hare, and corroborated by clinical experience.

The vaunted administration of digitalis, calabar extract, nitroglycerin, and possibly strychnine, from which much was expected in the treatment of shock, have all proved fallacious.

To sum up, therefore, the treatment of shock following operation:

1. Prophylaxis before and during the operation.
2. Wrap the patient in a warm blanket and apply hot-water bottles or hot bricks, and a hot-air apparatus.
3. Lower the head and shoulders.
4. Apply sinapisms to the precordium.
5. If severe shock, perform hypodermoclysis; if alarming, perform saline transfusion.
6. Give an enema of six ounces of strong, hot coffee.
7. Massage the abdomen and apply an abdominal compress.
8. Elevate the limbs, surround them with cotton-wool, and bandage.
9. Administer hypodermic injections of liquor ammoniæ aromaticus in half-drachm doses every fifteen minutes, and atropine sulphate  $\frac{1}{160}$  grain every half hour, until reaction sets in.

[To be continued.]

THE EXACT TREATMENT OF MALARIAL  
FEVERS.

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In the treatment of malarial fever a two-fold object must constantly be kept in mind: first, the treatment of the disease in question; and second, to prevent further infection. By what mode the *plasmodium malariae* gains entrance to the system is at present unknown. It is thought, however, that infection is more liable to occur at night. The disease shows no preference to either sex and attacks all ages. In the treatment of regular forms of intermittent and remittent malarial fevers of whatsoever type, it is the duty of the physician never to allow the recurrence of a paroxysm after once the diagnosis has been made. Injury may be done to the blood. The treatment of malarial fevers in general may be divided into that for the cold, hot, and sweating stages, and for the permanent cure of the disease.

During the cold stage the patient should either be put to bed and wrapped well in woolen blankets, and hot-water bottles put to his limbs and body, or should remain in a very warm room having a temperature from 85° to 90° F. A ten-grain dose of Dover's powder should be given early in this stage. Stimulants may be given if this stage be severe, but one objection arises to their use, on account of their causing severe headaches. They should be given in amount to affect the vasomotor system only. None is better than the old French brandy. The cold bath has been recommended during the cold stage. This was practised as early as 1835, and good results seem to have followed its use. Some physicians employ hypodermically, at the close of this stage, pilocarpine in pretty good doses, and it is said that it cuts the hot stage shorter. Its use should be guarded.

As to the hot stage: Do not give quinine at the beginning of this stage; it may cause delirium. The patient should be made as comfortable as possible. He should be placed in a well lighted and ventilated room and cool refreshing drinks be given. The ice-bag or cloths wrung out of ice-water may be applied to the head. The body may be sponged with cold or tepid water, or even the cold bath be given, which affords great relief. A diaphoretic may be given, such as Dover's powder or pilocarpine. Preparations should be made for the oncoming sweating stage: When this stage arrives the

patient should, if not before, be placed in bed and hot drinks, such as hot lemonade or a hot whiskey toddy, be given to promote a free flow of perspiration. Other treatment is not really needed, except the change of the clothing and sponging of the body after this stage has subsided, taking care to avoid any undue exposure to cold.

When the diagnosis of malarial fever has been made, what is the exact treatment which the physician should pursue? The first thing to be thought of is to prevent the next paroxysm. If you have not treated the patient through the various stages of the first paroxysm—and in a large proportion of cases the physician is not called until a few hours after the first paroxysm, or possibly he may be called during the sweating stage—you learn from the history of the case the nature of the trouble and at once institute your treatment. In quinine there is a specific in the treatment of malarial fevers. Of the very few drugs in the physician's armamentarium which are called specifics, quinine in my estimation should rank first. It is the one specific which may be relied upon and good results expected to follow its use. As soon as the paroxysm is at an end commence its use. It was formerly believed that the administration of quinine in large doses (twenty-five to forty grains) was productive of the very best results, but later research has revealed two objections to this radical treatment: First, the poisonous effects that may be produced and even profound fatal cinchonism that may prevail, some patients being very susceptible to its effects; second, it is not necessary to give such large doses of quinine. We can reduce the temperature without such treatment. The sole influence of the quinine is to cause the death of the *plasmodium malariae* or germ producing the malarial fever; the object being to saturate the blood and by such means kill the little germ, arresting the next paroxysm. The ordinary rule is to administer the quinine in small and frequently repeated doses—two to three or four grains every hour or two—so that by the time for the next paroxysm the patient may have taken from half to one drachm. It should be continued until the effects of cinchonism are produced. This is ascertained by the tinnitus aurium which the patient experiences.

If the type of malarial fever be the quotidian intermittent, the chances that the paroxysm will or will not return again are about even. If of the tertian or quartan type, it

may safely be said that the paroxysm will not return. Cinchonism is a sign that the system is fully under the influence of the quinine and that the *plasmodium malariae* has been destroyed, although in a few hours, if of the quotidian type, the patient may have a paroxysm. This can only be explained by the fact that a new set of hematozoa have reached a certain period of development before the effect of the quinine was fully exerted upon their growth. Give preferably the sulphate of quinine in divided doses and during the intermission of the paroxysm. It is best administered in solution. One drop of the aromatic sulphuric acid to the grain of quinine makes a very good pill mass. Three drops dissolves it readily, to which water may be added to form a solution. The same is true of tartaric, lactic, citric and nitric acids. If the taste is too intensely bitter for the patient a syrup may be used, as that of licorice or yerba santa. A favorite prescription is the following:

R Quinine sulphate, 1½ drachms;  
Syrup yerba santa, 4 fluidounces.

M. Sig.: One teaspoonful every two to three or four hours for an adult. The bottle should be shaken well before using.

If still too bitter give in capsule or konseal form. Sometimes fruits or candies may be used to destroy the taste. To children the preferable mode is to employ the quinine in a syrup, as in the above prescription, in doses proportionate to age. The following serves well and should be tried:

R Tincture iron chloride, 2 fluidrachms;  
Quinine sulphate, ½ ounce;  
Tincture chinoidine, 6 fluidrachms;  
Distilled water, 1 fluidrachm.

M. Sig.: Ten to twenty drops for an adult should be taken in some water every three or four hours.

The effects of cinchonism may be reduced by combining caffeine citrate (half a grain) with quinine (two grains). Antipyrin, antifebrin, and phenacetin in three- to five- or six-grain doses also reduce the effects of quinine upon the system. These remedies have a tendency to relieve muscular pain, headache, etc. Their effects should be carefully watched. Opium in some form, as Dover's powder, may also be used. To reduce the temperature aconite may be used *per se*, or it may be combined with an opiate, as the tincture of Dover's powder. Some of the above mentioned coal-tar derivatives may also be used. The fluid extract of pilocarpine or jaborandi may be used to advantage in doses of five to ten drops. Aromatic sulphuric acid in four- or

five-drop doses in water every two hours acts well as an antipyretic. A warm bath may be given. If the paroxysms be postponed it is good evidence that results are being produced. If the patient grows worse it shows that quinine is not being used, or that it is adulterated, or that a complication has set in. When the paroxysms have been stayed a purgative may be given as follows:

R Calomel, 3 grains;  
Sodium bicarbonate, 12 grains;  
Sugar of milk, 12 grains;

M. Make into 12 powders. Sig.: One powder every hour until bowels move freely.

Jalap in small doses may be combined with the calomel. Salicin may be given in fifteen-grain to one-drachm doses until effects are produced, and repeat *pro re nata*. A saline may also be employed.

Large doses of purgatives and emetics were formerly used in the beginning of the disease, from the belief that the gastro-intestinal tract should be cleansed before commencing the antimalarial treatment. Nowadays we first begin with the antipyretic treatment and defer the purges until later. Bleeding was at one time thought to be productive of very good results, but such treatment is no longer considered.

Occasionally a patient is found who has an idiosyncrasy to quinine. In such cases what is to be done? The cinchonidia sulphate in doses twice the size of those of quinine, or the cinchona sulphate in doses about three times the size, may be given. If the idiosyncrasy be still too great something else must be given. Arsenic in the form of Fowler's solution, in doses of five to ten drops, well diluted, three times a day, is very good. It should be commenced as soon as possible after an attack, and continued. It is impossible to bring the system under the full effects of the arsenic soon; hence it should be continued for some length of time. *Eupatorium perfoliatum* (thoroughwort, boneset) may be used as a substitute for quinine in such cases on account of the intensely bitter principle it contains. This is "the poor man's quinine." Administer it preferably in the form of the fresh fluid extract, in doses of a half to one fluidrachm. It is a good expectorant, cathartic, and emetic, a high diaphoretic, and very good antiperiodic. The sulphate berberine in fifteen- to thirty-grain doses during the apyrexial period seems to yield good results. It does not produce the bad effects that the cinchona salts do. Ferrocyanide of iron (Prussian blue) was formerly



thought to be good; it is probably inert. Chloride of ammonia in half- to one-drachm doses acts very well during the intermissions. Nitric acid in three- to eight-drop doses, well diluted, may be given every four to six hours. Strychnine in  $\frac{1}{100}$ - to  $\frac{1}{50}$ -grain doses may be used. Potassium iodide was formerly thought to be curative, but it is doubtful if it has any effect upon the plasmodium. Piperine with cinchona may be used. In all cases the cardiac action should be closely watched.

Oftentimes a patient is found whose stomach is so irritable that it will not tolerate the quinine. In such cases use the quinine or antiperiodic enema per rectum in twice the size doses as per os. Only use hypodermic injections of quinine in the more malignant types of the malarial fevers.

What shall be done during the period of convalescence to prevent the recurrence of another attack, and to prevent further infection? It is not correct nor is justice done to the patient to interrupt the treatment at once. Keep the patient under the influence of the remedy until the plasmodium has been entirely abolished. This may be ascertained by a microscopical examination of the blood. If none be found, and after a few weeks' continuous treatment, it may be safely said that the patient is free of malaria, although some cachexia may remain. A tonic should always be given. Prescribe iron and gentian or *Cornus florida* (dogwood). Of the latter give the fresh fluid extract of the bark. The phospho-muriate of quinine is a good tonic. It contains iron, quinine, strychnine, and the phosphates in a pleasant vehicle. Strychnine in appropriate doses is often prescribed. The tonic should be continued for some time after convalescence has been established. The above line of treatment answers very well in the ordinary or regular intermittent and remittent forms of malarial fevers. The dose of the antiperiodic should be larger in that of remittent fever.

To prevent further infection in a malarious district, it is well for the patient to continue the quinine in one- or two-grain doses three times a day, or its succedaneum in proportionate doses, for a considerable length of time. The patient should be removed, if possible, from the infected district until the malarial taint has been entirely eradicated from his system. Send him to a community where malarial fevers are unknown.

A few words in regard to the diet for a patient suffering with malarial fever. Only those articles of food which are completely

dissolved in the stomach and those which leave little residue should be given. Milk contains all the elements of nutrition in a concentrated form. One may live on a milk diet for a considerable length of time. If the patient dislikes milk, give something else. Liquid food is one which is produced by artificial means and subserves the use of solid foods. It should be given to a patient in a condition to convey the greatest amount of nutritive material in the smallest bulk. It should be as near a solution as possible. Beef-juice and broths, eggs poached or lightly boiled, soups, jellies, toasted bread, with cream and sugar; oatmeal in large quantities acts as a laxative; rolled oats, rice well cooked, and some fruits. Beef-tea is a very good stimulant, but possesses next to nothing in point of nourishment. Dr. Thudicum, of Liverpool, England, said a few years ago that beef-tea contained the elements of urine. This is no doubt true to a great extent, but nevertheless many physicians daily prescribe it as one of the principal constituents of the menu of the sick-room.

The irregular forms of intermittent and remittent malarial fevers are more intractable and do not yield so readily to treatment. The pernicious type is fortunately very rare in temperate climates, but is frequently seen in the south and tropical countries. There are several forms of this pernicious type, chief of which are the algid, gastro-intestinal, comatose, delirious, and hemorrhagic. Two types may combine to form a new one. The treatment of all the types should be symptomatic during the paroxysm and through the intermission, to prevent the next one. The quinine should be administered hypodermically in pretty free doses, care being taken not to cause an abscess. It is best to administer the muriate of quinine and urea in solution. This form of quinine and the urea seems to act more forcibly. A sufficient amount should be given to induce cinchonism as soon as possible. After the paroxysms have been stayed, then follow the course of treatment outlined above.

The gastro-intestinal type is sometimes mistaken for cholera morbus. The disease soon yields to antiperiodic treatment.

A word in regard to the treatment of the hemorrhagic type. It is in this form that we observe the malarial hematuria. This form is always found in malarial districts, and if the malarial fevers be treated properly a less number of these cases will be observed. A

thors seem to differ in the treatment of this form. Quinine hypodermically, in five-grain doses every three hours, should be given to act early on the development of the parasites.

Malarial hematuria or hemoglobinuria is due to a peculiar form of the parasite of Laveran, and if our line of reasoning be kept up, quinine should form an important part of the treatment. The patient should be placed in bed, kept warm, secretions opened freely, and the kidneys spared. Gallic acid in five- to ten-grain doses every two to four hours may be given. Tincture laricis cortex in twenty- to thirty-minim doses every three to four hours serves well. In this form there is a great tendency to heart failure. The cardiac stimulation and tonics with good food should be kept up.

The mortality from any of the types of pernicious malarial fever is high, and if the treatment be not active from the outset, little or no results may be expected.

The æstivo-autumnal or typho-malarial type, in which the paroxysms are little or not at all marked, and the fever more or less continuous for several weeks, appearing late in the summer or early autumn, usually yields readily to the antiperiodic treatment. After the paroxysms have been broken and some little pyrexia continues, the ordinary treatment for typhoid or other fevers should be carried out.

The more irregular forms of malarial fevers, as diarrhea, brow or sun pain, or anesthesia of arm, neuralgia, especially of fifth, seventh, and sciatic nerves, and menorrhagia in women, are the most frequent. Look for the causes and remove them. The patient should be placed on larger doses of quinine than for a common attack, and in the course of a few weeks good results will be noted.

Dyspepsia may occur in paroxysmal attacks. Use quinine in good doses or Fowler's solution in five- to ten-minim doses, well diluted, three times a day until its effects are noted; it usually effects a cure.

A pneumonia may complicate a malarial infection. Eliminate the malarial element with the antiperiodic treatment, and in thirty-six hours obtain the *crepitus redux*.

Fractures should be watched in a malarious district lest union be slow. Better give a little quinine on general principles. In all, the exact treatment of malarial fevers consists in eliminating the plasmodium of Laveran from the system of the patient by whatever mode and means are best suited to the patient. Tonics and supporting treatment should follow in the wake.

## A CASE OF HYOSCINE INTOXICATION.

BY AUGUSTUS A. ESHNER, M.D.,  
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Hyoscine is in many respects such a useful drug and one so extensively employed that any untoward effects resulting from its medicinal employment seem deserving of record. I wish in this connection to relate briefly the case of a man, fifty-five years old, for many years a sufferer from asthma, who received at 10 P.M. by hypodermic injection for the relief of a paroxysm:

Morphine sulphate,  $\frac{1}{4}$  grain;  
Strychnine sulphate, 1-60 grain;  
Hyoscine hydrobromate, 1-100 grain.

In a few minutes a small measure of relief from the asthmatic difficulty and distress was experienced, but in a few more minutes there was noted extreme muscular weakness, which quickly progressed to a state of general relaxation, with loss of consciousness. The face was markedly flushed and the vessels extremely prominent. The action of the heart was excited, although the rhythm was not disturbed, and no adventitious sounds were audible. The pulse was hard, tense, and full, and the beat about 120 to the minute. The respirations were noisy and labored, and about 40 to the minute. The pupils were of ordinary size. The patient could not lie recumbent, and attempts to get him into bed were desisted from in consequence of the resulting apparent discomfort. There was occasionally slight twitching of the hands, and the knee-jerks were irritable and perhaps a little increased. The patient could be aroused to partial consciousness, but he was not able to speak. At times he made certain incoordinate movements and gestures apparently indicative of his distress and his wishes. He could not be induced to swallow, and his teeth were found clenched when an effort was made to introduce bits of ice into the mouth. The skin was moist and cool and free perspiration followed.

As the patient had on former occasions received without ill results as much as one-fourth of a grain of morphine sulphate hypodermically, and as the symptoms were unlike those of strychnine poisoning (the dose of strychnine being a small, even medicinal, one) and corresponded with those to be expected from hyoscine intoxication, a further dose of one-eighth of a grain of morphine sulphate was injected beneath the skin, and a third dose several hours later. In addition

amyl nitrite was administered by inhalation. The conditions gradually improved, consciousness and power of speech and motor capability slowly returning.

At seven o'clock in the morning, nine hours after the injection, the patient was unable to recall anything that had taken place during the night, and expressed himself as having passed through a comfortable period. He was yet unsteady upon his feet and was unable to pass more than a drachm or two of urine. A specimen from a larger quantity passed during the subsequent day had a specific gravity of 1024 and, although failing to respond to the heat and contact (nitric acid) tests for albumen, contained numerous hyaline and granular casts. Albumen and casts had also been found previously. The patient had on former occasions taken by the mouth without unpleasant manifestations as much as  $\frac{1}{16}$  grain of hyoscine thrice in the course of a night. The pronounced symptoms that thus developed from the hypodermic employment of so small a dose as  $\frac{1}{16}$  grain of hyoscine hydrobromate must be attributed to idiosyncrasy, the undue susceptibility being perhaps intensified by the somewhat debilitated condition of the patient at the time. Of course it is possible that the tablet used contained more than the quantity named, but this is highly improbable.

Untoward results have been reported from the hypodermic employment of even a smaller dose of hyoscine. Thus O'Hara (*THERAPEUTIC GAZETTE*, vol. ii, 26; cited by Wood: *Therapeutics*, 7th Ed., 1888, p. 237) relates a case in which the administration of  $\frac{1}{16}$  grain hypodermically was followed by severe disturbance, lasting for twenty-eight hours, with total lack of remembrance of occurrences that took place during the seven hours succeeding the injection. Root (*THERAPEUTIC GAZETTE*, vol. ii; cited by Wood, *loc. cit.*) records a case in which  $\frac{1}{32}$  grain administered by the mouth gave rise to symptoms of violent poisoning, and even  $\frac{1}{16}$  grain occasioned very pronounced manifestations. Gnauck (*Medical News*, xl, 323; cited in the National Dispensatory, 5th Ed., 1894, p. 855) states that even a very minute dose ( $\frac{1}{32}$  grain) of hyoscine is capable of producing its characteristic effects and, subcutaneously, of acting twice as powerfully as by the mouth. On the other hand, Hutchinson (*Alienist and Neurologist*, iii, 539; cited by Wood, *loc. cit.*) reports that the ingestion of one-quarter grain of very impure hyoscine was followed by quiet coma, with entire muscular relaxa-

tion lasting eleven hours. Further, according to Wood, no case of fatal poisoning is on record.

In explanation of the widely diverse results obtained from the use of hyoscine it must be concluded that different preparations of the drug vary greatly in activity; while some significance is to be attached also to the matter of idiosyncrasy. The best antidote for hyoscine is said to be chloral (National Dispensatory, p. 587); Hare (*Therapeutics*, 5th Ed., 1895, p. 209) recommends pilocarpine.

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#### THE DUTY OF THE PHYSICIAN TO THE DYING.

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BY A. L. BENEDICT, M.D.,  
Buffalo.

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It is no easy matter to define what is meant by the word "dying." In the broadest sense, every one is constantly approaching death or is even in immediate proximity to it, unaware of its presence, and thus may be said to be "dying." But in ordinary, non-theological parlance, the word may mean either that a person is fatally sick or injured, or that he is *in articulo mortis*, and thus within a few hours or minutes of death.

The physician is frequently implored to relieve suffering by means indirectly prejudicial to continuance of life, or even to hasten death; or, on the other hand, the feelings of the patient or his relatives, or the conscientious scruples of the physician himself, may urge the prolongation of life to the fullest extent, regardless of other considerations.

For the production of euthanasia there is practically only one satisfactory drug—morphine. Whether the pain is the acute agony of fatal traumatism or serous inflammation, the ungratified and ungratifiable need of oxygen, or the intense discomfort of utter fatigue, mild hypnotics, the coal-tar analgesics, and similar drugs usually fail utterly. Sometimes inhalations of chloroform are indicated, though the danger of sudden death must always be considered. Occasionally, when the pain is of a spasmodic nature, nitrite of amyl is moderately efficient. Usually, euthanasia and hebetude are synonymous. Occasionally patients are "conscious to the last" without suffering and with the retention of full mental powers. Rarely death is preceded by a period of exaltation, and such cases are carefully treasured by those ser-

mentally inclined, especially when the exaltation is of a religious nature. Fortunately the death-bed scenes of pulpit oratory are almost never witnessed, most persons leaving this world in a dignified and quiet manner. The theoretical objection to using a depressing drug when death is imminent does not, in our opinion, outweigh the claim of the sufferer for peace. We may well urge the patient to endure pain if his sickness is of a transient nature and if the opiate may throw the balance against recovery. But when the end is inevitable, when the alternative is only between, let us say, three hours of comfortable existence and three hours and a quarter of misery, there seems to be no ethical objection to erring on the side of mercy. With regard to the use of morphine or opium in Galenical form, we may well be skeptical as to the possibility of cardiac depression. Indeed, many still hold to its therapeutic value as a cardiac stimulant. In respiratory failure, however, there is real danger of depression of the medullary center.

It is stretching both the term "euthanasia" and the ethical consideration involved to lull the fatally sick into a lethargy days or weeks before death. Morphine cannot be relied upon too long, and if used on too slight provocation there is apt to follow a period in which the dying patient suffers the discomfort of disease plus the misery of the morphine habit. This should always be remembered in the treatment of cancer, and the usefulness of local anesthetics and of milder central depressants should be exhausted before recourse is had to opiates. It is the habit of some practitioners to use opiate cough mixtures freely, especially in consumption. In this connection we need not consider the impropriety of using opium in curable coughs. It is our purpose merely to emphasize the fact that we have no more right to reduce a consumptive to a vegetative existence for several weeks or months prior to death than we have actually to deprive him of organic life. Nor can such practise be excused by the plea that the morphine treatment keeps the consumptive comfortable and stills his complaints.

In medical practise one not infrequently meets emergencies when the humane physician is strongly tempted to break the commandment, "Thou shalt not kill." The misery and disgrace which the birth of a child will entail on a too trusting but really innocent girl, the suffering which we would not be so cruel as to allow an animal to

endure, often appeal most speciously to the heart of a humane man. Yet most of us have religion enough to force the admission that, whatever the circumstances, the deliberate taking of human life belongs to a higher power than the individual human creature. Therefore the only safeguard against the temptation to kill in the cause of mercy is the resolution never to consider the merits of such cases, but to answer their appeals with a firm refusal.

On the other hand there is, in our opinion, no ethical consideration which demands the use of artificial means to prolong the death agony simply for the sake of postponing death. Such treatment would be as strictly an interference with the natural workings of Providence as the cutting short of life. Thus, the hypodermic use of strychnine, nitroglycerin, etc., at the termination of an inevitably fatal sickness, is uncalled for, unless the making of a will, the meeting with a summoned friend, or some similar exigency, calls for the temporary prolongation of life.

On the other hand, in all but the most clearly understood cases the benefit of the doubt should always be given to the patient, and every means should be employed to tide over the crisis. This is true even to the extent of using restorative measures to the apparently dead. The stimulant should first be injected, and then there is leisure to determine whether life has or has not departed. Drowning, mutilating injuries, advanced heart disease, profound shock, apparently fatal syncope from any cause, are instances in which occasional cases may surprise the shrewdest by recovering in the face of an absolute prognosis, or even diagnosis, of death.

#### CALOMEL INJECTIONS IN SYPHILIS.

ASSELBERGS (*Presse Médicale Belge*, November, 1896) uses calomel injections in the following conditions: (1) Certain cutaneous and mucous syphilides, erosion of the tongue, onychia, palmar and plantar psoriasis; (2) ulcerations in general, especially of the tongue; (3) visceral and cerebral syphilis; (4) cases which resist other forms of treatment; (5) cases of dyspepsia in which the stomach will not tolerate mercury by the mouth.

The author does not agree with Julien in advocating it as a routine treatment for all cases, owing to the considerable amount of pain caused after the injections.—*British Medical Journal*, June 26, 1897.

# The Therapeutic Gazette

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## Leading Articles.

### THE THERAPEUTIC USES OF SUPRARENAL GLAND.

The three glands in the body which have so far positively proved their therapeutic efficiency in the treatment of disease produced by or originating in failure of their function are the thyroid, the pancreas, and the suprarenal bodies. Of these the thyroid, as obtained from the sheep, has proved itself by far the most efficacious. Our knowledge concerning the therapeutic efficiency of the pancreas and the suprarenal gland is as yet more uncertain, although of course the therapeutic value of the digestive ferments derived from the pancreas has been decided upon favorably beyond all doubt.

From the physiological action possessed by suprarenal glands, or their extract, it is evident that a greater possibility exists for the production of good results in their employment than their limited administration in the presence of Addison's disease, for the studies of Schafer and others have proved that the adrenals contain an active principle which directly or indirectly powerfully stimu-

lates the vaso-motor system with the result that greater increase in arterial pressure ensues upon the administration of this gland. The recommendation made by Oliver that adrenals be employed in asthenia and anemia seems based upon the lines of rational therapeutics, and the further suggestion that these glands be employed in those cases of diabetes which are perhaps dependent upon dilatation of the hepatic blood-vessels also seems reasonable. The daily dosage of the gland itself, or of its equivalent, should amount to about 45 grains, and it seems evident that they can be given continuously for long periods of time without injurious effect.

There are so many instances met with by the physicians in which the chief ailment of the patient seems to be a functional atony of the vascular and nervous system that we would suggest the wider employment of adrenal extract in such cases. In earlier issues of the GAZETTE we have called attention to the value of the various glands possessing internal secretion, and while it is true that certain organs which do not possess internal secretions have been abused therapeutically, it is also true that the glands which we have mentioned are capable of doing as much good as are the others of accomplishing no results.

In the *American Journal of the Medical Sciences* for July, 1897, Kinnicutt, of New York, publishes a paper entitled "The Therapeutics of the Internal Secretions," in which he discusses the results which have been obtained from the administration of thyroid in goitre, insanity, and obesity, and he mentions the various theories which have been advanced as to the method by which it does good. The usefulness of the thymus gland in goitre and other diseases, and the employment of the pituitary body in acromegaly and other lesions supposed to depend upon a disease of this part, are considered. In this article he also publishes a useful bibliography and a carefully prepared list of cases in which adrenal preparations have been employed in Addison's disease, from which it is evident that we have in the adrenal extract practically a specific for this ailment.

### IODOFORM AMBLYOPIA.

In the last few years medical journals, more particularly those devoted to the study of the eye, have had recorded in their pages from time to time interesting cases of parti-

or total blindness produced by the ingestion or absorption from the external surface of some poison which has a peculiar affinity for the fibres of the optic nerve. The information thus obtained has, as is well known to the readers of the THERAPEUTIC GAZETTE, been carefully collated in two monographs, one by Dr. Casey Wood, of Chicago, and a larger one by Dr. G. E. de Schweinitz, of Philadelphia, to whom was awarded the Alvarenga Prize of the College of Physicians for his essay. In this essay we find four cases recorded in which the amblyopia resulted from the absorption of iodoform. Two of them were quite young and two were adult males, and it would seem evident that it requires very large amounts of this drug to produce the symptom which we are considering. According to de Schweinitz a study of these cases would lead us to expect in a typical iodoform amblyopia marked reduction of the central acuity of vision unimproved by glasses, preservation of the peripheral visual field, but a central scotoma at or near the fixation point, and negative ophthalmoscopic appearances and at least gray-ing of the disk with some blurring of the margins. In other words the conditions present in amblyopia from iodoform poisoning are closely allied with those which develop from the excessive use of tobacco or alcohol. Still more recently two interesting cases of amblyopia have been reported by Dr. James W. Russell in the London *Lancet* for June 12, 1897. This gentleman has been in the habit for a number of years of treating his cases of pulmonary tuberculosis with full doses of iodoform, varying from 2 to 10 grains a day. In the course of this series of studies on the influence of iodoform in pulmonary tuberculosis he has met with two cases of iodoform amblyopia.

The first was a man of thirty-two years, who after taking iodoform for several weeks experienced increasing difficulty in reading, and an ocular examination showed that his vision in both eyes was markedly reduced. Stopping the administration of the iodoform resulted in recovery. The other patient was a man of twenty-six years who also received iodoform for a considerable period of time beginning on September 28, 1895. On January 22, 1897, after having taken 10 grains of iodoform for only three weeks continuously he also noticed increasing difficulty in reading and an ocular examination showed marked reduction in vision. An examination by Dr. Wood White, how-

ever, at the Midland Eye Hospital failed to reveal the central color scotoma which is so frequently seen when tobacco produces amblyopia. On leaving off the iodoform vision speedily recovered.

It is interesting to note in this connection that Dr. Russell believes the iodoform treatment of pulmonary tuberculosis to be a very valuable one.

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*THE INDICATIONS AND CONTRAINDICATIONS FOR THE EMPLOYMENT OF STRYCHNINE IN ALCOHOLISM.*

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The fact, well known to physicians who are daily brought in contact with inebriates, that strychnine is a useful nervous stimulant to many such patients has within the last few years been utilized by a notorious quack in forming the basis of a method of treatment which he has largely advertised and which has been largely advertised for him by many of the gullible newspapers and the general public. It is simply a deduction from the ordinary laws of therapeutics that any drug possessing such powerful stimulant properties as strychnine ought to prove useful in combating the reaction and depression following acute, subacute, or chronic alcoholic excess. Under its use the tremors, the insomnia, the exaggerated reflexes, the pains in the muscles, the loss of appetite, and certain of the psychical symptoms are materially modified or put aside, and its usefulness seems to be in direct proportion to the acuteness of the alcoholism from which the patient has been suffering. That there is a particular advantage in the so-called nitrate of strychnine over the sulphate of strychnine or any other prepared salt of the alkaloid derived from *nux vomica* does not seem to us to be borne out by practical experience or rational deduction, and as good results should be obtained from the administration of proper doses of the sulphate of strychnine as are said to be derived from the use of the nitrate. It is pointed out by Combemale that there are, however, certain conditions found in alcoholics which should render the physician most cautious in the administration of full doses of strychnine. Particularly is this the case where there are profound alterations in the important and abdominal viscera, as for example advanced pathological changes in the liver, or instances in which there is well developed renal disease. The very condition of glandular inactivity which exists in persons suffering from alcoholism necessarily

renders the elimination of this drug by the saliva, the bile and the urine exceedingly slow, and for these reasons Combemale believes that it is liable to accumulate in the system and produce excessive manifestations later on. He therefore thinks that cirrhosis and nephritis in their chronic forms are both to be considered as partial contraindications to the use of strychnine, or, if the physician still desires to administer this drug, that smaller doses should be employed than would otherwise be used.

#### URETERO-RECTAL IMPLANTATION.

From a fairly comprehensive study of the literature of uretero-rectal implantation Mathes (*Deutsche Zeitschrift für Chirurgie*, 45 bd., 1 u., 2 heft) finds that of fourteen reported cases operated on in accordance with the technique practised by Maydl but two perished, and holds that as greater skill is acquired by surgeons this comparatively low mortality will be reduced still further. Two cases of lateral apposition ended fatally; four of axial apposition—*i. e.*, rectal implantation of the ureter cut across in its continuity—gave two successful results; four cases of implantation facilitated by apparatus resulted in one death, and in one instance the establishment of an abdominal urinary fistula. Of the successful cases, the longest time during which any one had been under observation was fifteen months.

It is evident that uretero-rectal implantation is most likely to be required for the relief of the incontinence which constitutes the most distressing symptom of vesical exstrophy and in the course of operation for the removal of malignant vesical tumors, particularly those primarily affecting the bladder. If the procedure could be shown to be reasonably safe in its immediate effects and to be free from the remote dangers which we have learned to regard as almost inseparable from it, there would naturally be many other pathological conditions which if present would strongly indicate its performance, such for instance as intractable cystitis, vesical tuberculosis, urinary incontinence, or obstinate vesical retention.

The objections which first occur to the mind of the surgeon in considering the operation are: The mechanical difficulty of completing it without infecting the peritoneum and without prolonging the anesthesia beyond the danger point; the irritating effect

of the urine upon the rectal mucous membrane, with resultant proctitis and more or less rectal incontinence; ascending infection along the implanted ureters with the development of fatal pyelonephritis.

The operation is undoubtedly difficult; nor when it is performed through a suppurating bladder is there any certain way of avoiding infection of the tissues involved; yet by careful preparation and judicious use of sterile pads the danger of acute peritonitis can be reduced to a minimum, while practise on dogs and on cadavers will so accustom the surgeon to the general principles of the procedure that much time can be saved.

In the reported cases the urine has not caused proctitis and the anal sphincter has been fairly competent, the patients urinating through it from three to twelve times a day, and often sleeping through the entire night without being disturbed. The sphincter is not always completely competent, however, some of the reported cases habitually soiling the bed and being unable to strain, cough, or pass flatus without an escape of urine and feces.

In the cases of congenital absence of the penis, the ureters opening into the rectum (collected by R. P. Harris, not yet reported), it is noteworthy that the rectum remained free from irritation till the age of puberty; after this proctitis and incontinence developed.

Ascending infection and the development of pyelonephritis, which we have been led to believe both by animal experiments and essays on the human is ultimately inevitable, is apparently due in the main to stenosis and urinary retention; if this can be avoided there is reason to believe that the ureter and kidney may remain healthy. Maydl's operation offers the most rational method of avoiding this stenosis and at the same time preserving the valve which normally exists at the uretero-vesical orifice. Of all the various methods of uretero-rectal implantation by lateral apposition, oblique valvular implantation, and instrumental conjunction, the Maydl method is without doubt the one of choice, and yet even this does not assure against ascending infection, as shown by Mikulicz's case, which died of pyelonephritis four months after operation.

Maydl's operation is thus performed: The patient is placed in the Trendelenburg position, and the case being one of exstrophy, an incision two inches long is made circumscribing the upper third of the exposed vesical mucosa; the latter is then well covered

with sterile pads. The sigmoid flexure is found lying to the left and directly behind the bladder; the portion to be manipulated is walled from the abdominal cavity by sterile pads, sounds are passed into the ureters, the vesical peritoneum is stripped back in the form of two lateral flaps. An oval portion of the vesical mucosa an inch and a quarter by three-quarters of an inch, and containing the ureteral orifices, is cut loose, the ureters with the surrounding cellular tissue are sufficiently freed, till this bladder segment can be brought upward and forward and implanted into the sigmoid flexure, which previously has been stripped of its fecal contents and secured above and below by clamps. The lumen of the gut is opened by a longitudinal incision, the oval bladder segment is turned so that the right ureter is above, and the vesical mucosa is secured to that of the gut by a continuous suture; a second row of interrupted sutures apposes the muscular coat of the bladder to the muscular and serous investments of the bowel; and finally the seat of apposition is covered in by the lateral post-vesical peritoneal flaps held in place by interrupted sutures. The rest of the vesical mucosa is excised, sterile gauze is packed about this implantation, the freshened borders of the recti muscles are approximated as nearly as possible, the belly wound is partly closed by suture with the exception of the space left for drainage, and a soft drainage tube is carried through the anal sphincter.

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## Reports on Therapeutic Progress

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### *THE FINAL ANTITOXIN REPORT.*

In another column of this issue may be found the supplementary and final report of the committee appointed by the American Pediatric Association to investigate the efficiency of diphtheria antitoxin. The conclusions deduced by this committee have been sanctioned by the Association and are now given to the world with the full weight of its approval and authority. But that the most critical skeptic shall be disarmed, the methods of this investigation have also been presented in detail.

The solution of two crucial questions has been undertaken. Upon the answers given the claims of antitoxin have been allowed to stand or fall: "(1) What percentage of cases of laryngeal diphtheria recover without oper-

ation under antitoxin treatment? (2) What percentage of cases subjected to operation recover?"

It is proven by the committee's report that in eighty-two per cent. of non-operated cases the patients recovered under the serum treatment, the average percentage of recoveries in the preantitoxin period being ten per cent. To apply even a severer test, let us take the children under two years of age, in which class of patients laryngeal diphtheria is confessedly so dangerous that a mortality approximating one hundred per cent. was formerly regarded as not unusual. Under antitoxin in 356 of these cases only 102 patients were lost, a mortality of less than thirty per cent. With no other evidence than is contained in this statement the most stubborn objector must be convinced.

The investigation of operated cases is equally gratifying; nearly seventy-three per cent. recovered.

A most encouraging feature developed by the committee, but not mentioned in its report, is the fact that 1700 cases of laryngeal croup were treated with the remedy during eleven months. This goes to show how strong a hold serum therapy has taken upon the minds of earnest physicians throughout America.

A very practical suggestion is offered by the committee when a sufficiently potent dose is recommended. As with all untried remedies, the early use of diphtheria antitoxin was very properly tempered by a spirit of caution, but since a purer and more concentrated product is now furnished, experience would suggest a larger and more efficient dosage.

The highest commendation should be accorded the American Pediatric Association for so persistently adding line upon line and precept upon precept until a verdict of "proved" has been established beyond peradventure. The final word has been spoken—a fact is before us.—*Medical News*, May 15, 1897.

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### *THE USE OF CONVALLAMARIN IN CHLOROFORM NARCOSIS.*

LEWENBERG has carried out a series of experiments with dogs in which he has given full doses of convallamarin for the purpose of combating the arrest of circulation and respiration caused by the chloroform, with the result that he believes this remedy is of value in preventing or remedying this accident.



*A PRESCRIPTION FOR PRURITUS ANI.*

According to *La Presse Médicale Belge* of April 25, 1897, the following prescription is useful:

- ℞ Powdered camphor, 30 grains;  
Oxide of zinc, 1 ounce;  
Bismuth, 1 ounce;  
Talc, 1 ounce.

This powder is applied by means of absorbent cotton, the part which itches having been first painted by a twenty-five-per-cent. solution of nitrate of silver, after which a suppository of cacao butter and extract of belladonna may be used.

*DOSAGE FOR CHILDREN.*

The *Journal des Praticiens* of March 20, 1897, gives the following information in regard to caffeine, which is to be considered a heart tonic and stimulant to the nervous system and a diuretic. Hypodermic injections of the benzoate of caffeine may be given in the following formula:

- ℞ Caffeine,  
Benzoate of sodium, of each 15 grains;  
Distilled water, 2½ drachms.

The caffeine will not be completely dissolved without heat. A syringe containing twenty to thirty minims of this solution may be used for this injection. The dose of caffeine for the age of the child is as follows: For a child up to fifteen months, one to two grains a day; fifteen months to three years, three to four grains; three to five years, four to five grains; five to ten years, five to eight grains.

Caffeine may be given by the stomach in the following solution:

- ℞ Syrup and distilled water, of each 6 drachms;  
Rum, 2 drachms;  
Citrate of caffeine, 15 grains.

A small teaspoonful of this may be given two or three times a day.

Calomel, which is to be employed in children for its influence upon the liver and as an intestinal antiseptic, is to be used as follows: As a purgative in one single dose it should not be given to a child up to six months. From six months to fifteen months the dose is one to two grains; fifteen months to three years, two to three grains; three to five years, three to five grains; five to ten years, five grains.

As an intestinal antiseptic the dose ought to be very small. It should not be given before six months. From six to fifteen months,  $\frac{1}{100}$  to  $\frac{1}{50}$  of a grain may be given at hour

intervals; from fifteen months to three years half a grain may be given three or four times at hour intervals; three to five years, three-fourths of a grain three or four times at hour intervals; five to ten years, one grain two or three times at hour intervals.

Calomel is an exceedingly useful intestinal antiseptic, but should not be repeated on consecutive days. It is best given mixed with a little sugar or sugar of milk.

*THE TREATMENT OF LOCOMOTOR ATAXIA.*

In the *Revue de Thérapeutique* of May 1, 1897, ERB, of Heidelberg, has an article upon this subject, which, as we all know, is one usually considered barren of therapeutic possibilities. After pointing out that syphilis is the chief cause of the disease and that venereal and alcoholic excess are other causes, he speaks of the necessity of treating nervous syphilis in its earliest stages not only by ordinary methods, but by the patient visiting hot springs, where active antisypilitic treatment may be carried on thoroughly. At the same time tonics, such as quinine, iron, and nux vomica, may be administered and various hydrotherapeutic measures instituted. If the iodides are employed they should be given in doses amounting to forty-five to sixty grains a day at least. The principal indication for the employment of the iodides consists in tertiary complications affecting the skin, mucous membranes, or the bones, and in cerebral syphilis; or that form in which there are violent shooting pains and the rapid development of symptoms of ataxia, probably due to peripheral neuritis. Everything should be done to avoid nervous excitation of the patient. In a few cases the nitrate of silver continued over long periods of time, then stopped, and then readministered, seems to be of value. Thus one-fourth of a grain may be given each day associated with the extract of nux vomica. The author has not obtained results from the administration of ergot. Arsenic deserves a trial, but the bromides are not to be employed. The following prescription is very useful as a tonic:

- ℞ Lactate of iron, 45 to 50 grains;  
Extract of cinchona, 60 to 75 grains;  
Extract of nux vomica, 5 to 10 grains;  
Extract of gentian, sufficient quantity.

To be made into 100 pills. Two or three of these are to be taken after each meal.

When baths are taken they should be neither too hot nor too cold, but of such

a character as to be tonic. For fulgurant pains the part affected may be wrapped in hot cloths, or small compresses wet with ether or chloroform may be employed; or, instead, a spray of chloride of methyl or a mustard plaster may be used. Frictions with chloroform or with liniments containing opium and belladonna may also be employed. In some cases, too, the coal-tar products in full doses give marked relief. In very grave cases it is absolutely necessary to secure relief by injections of morphine. For laryngeal crises we are to employ inhalations of chloroform and ether or a spray of cocaine. Other persons have recommended galvanization of the neck, particularly of the pneumogastric and the cervical sympathetic. For anovesical crises a powder composed of acetanilid, one of the bromides, and codeine or morphine is useful. To combat the paresthesias and anesthetics the cathode of the faradic or galvanic current may be applied to the part and stroking movements employed.

For the atrophy of the optic nerve mercury and iodide medication is necessary. Full hypodermic injections of strychnine may be given, tincture of iodine may be used externally, or the actual cautery applied at the back of the neck. Erb quotes Galezowski as recommending injections over a long period of time with cyanide of gold or the cyanide of mercury.

Should ataxia develop rapidly the patient must be made to take absolute rest, but should the ataxia be chronic the method of Fraenkel, based upon systematic exercise, possesses great advantage. For vesical troubles suspension perhaps does the most good, although hydrotherapy and strychnine are to be remembered as other remedial agents.

Finally, the following points may be given as the chief aim in the treatment of tabes: Active antisyphilitic treatment if the indication exists, the use of tonics, and electricity; hydrotherapy in its various tonic forms, the use of electrotherapy and suspension, care being taken not to neglect symptomatic treatment. Later, if the indications still exist for active antisyphilitic treatment it is to be used, although such good results cannot be expected from it. Careful regulation of the diet should be insisted upon, and hydrotherapy, electricity, with gymnastics, suspension, and psychical treatment should be utilized. If the disease is very far advanced and the patient is much incommoded in his movements, it is important to maintain his mental

tone by every encouraging method that we possess, and to use medication which will combat the disagreeable or painful symptoms.

#### THE MEDICAL TREATMENT OF PYELITIS.

In the *Bulletin Général de Thérapeutique* of April 30, 1897, ROBIN, after pointing out that this condition is usually regarded as one requiring surgical measures for relief, asserts that there are certain conditions in which medical treatment is of great value. In the first place great attention should be paid to the condition of the skin, the functions of which should be aided in every possible way, and an endeavor made to bring blood to the part by relieving the kidney. For this purpose the following liniment, used with active friction, may be valuable:

- R Tincture of cinchona,  
Spirit of camphor, of each 3½ ounces;  
Menthol, 30 grains;  
Tincture of nux vomica, 6 drachms.

Use as a liniment.

In regard to food, an absolute milk diet should be insisted upon and continued as long as possible, a pint being given every three hours, to be drank slowly in small sips. The tolerance of this diet, when given at proper intervals and in small quantities at a time, is quite extraordinary. If the patient becomes exceedingly tired of the milk diet, then we may allow broths and various farinaceous substitutes, but heavy foods should be carefully avoided. When waters are employed they should be from mildly alkaline springs. The medical treatment can be divided into three parts, namely: The use of balsams, of revulsives, and of astringents. As types of the balsamic method of treatment may be mentioned benzoic acid with the benzoate of sodium, both of which did these cases much good. From fifteen to sixty grains in the twenty-four hours is usually a sufficient maximum dose. There is no use in giving larger doses than this or continuing it for a very long period of time. The benzoic acid or benzoate of sodium may be given in capsules, or solution with syrup of orange flowers, or the following balsams may be used as adjuvants: Balsam of tolu, copaiba, eucalyptol. Or we may use turpentine 1½ drachms, powdered camphor 1½ drachms, extract of opium 2 grains, extract of aconite root 4 grains; to be made into 60 pills, and three pills given each day.

In the way of counter-irritation or re-

vulsive treatment during the acute stage of the pyelitis we may apply counter-irritation by means of a hot iron; but we should not employ cantharides to produce a blister, lest some of it may be absorbed and cause kidney trouble; or we may employ rhatany, tannin, or gallic acid associated with opium.

Internally we may need to employ anti-septic substances such as salol. Should hematuria develop the following prescription may be useful:

- ℞ Ergotin, 1 drachm;  
Gallic acid,  $\frac{1}{2}$  drachm;  
Turpentine, 1 drachm;  
Aromatic elixir, 4 ounces.

One or two teaspoonfuls every two or three hours.

Should there be much pus in the urine an absolute milk diet and quinine in large doses is of value. Should pain become a serious symptom it may be relieved by rubbing with the following liniment and by the use of an opium suppository:

- ℞ Camphor liniment, 1 ounce;  
Fluid extract of opium,  
Fluid extract of belladonna,  
Fluid extract of hyoscyamus, of each 30 minims;  
Chloroform,  $\frac{1}{4}$  ounce.

Of the mineral waters which the patient should drink may be mentioned Vichy and Contrexeville. Sometimes Carlsbad water is useful.

#### A PRESCRIPTION FOR NEURALGIA.

The *Revue de Thérapeutique* of May 1, 1897, gives the following prescription:

- ℞ Extract of hyoscyamus, 4 grains;  
Extract of valerian, 4 grains;  
Hydrochlorate of morphine, 1 grain.

Make into four pills; take one to four in twenty-four hours.

#### THE TREATMENT OF PULMONARY EDEMA.

In the *Journal des Praticiens* of May 8, 1897, HUCHARD, after discussing the history, etiology, and pathology of this affection proceeds to consider its treatment. He recognizes the fact that there is usually present great dilatation of the right ventricle, feebleness of the heart muscle, and high tension in the pulmonary artery; that there is usually a disorder of cardio-pulmonary innervation, and that in very many cases there is also secondary toxemia due to renal disease or inactivity. For the tendency to failure of the right ventricle he suggests digitalis, which many of us have already applied with advantage. General venesection may be employed, or wet cups may be applied over the

thoracic region or the region of the liver or kidneys. For sudden cardiac failure he highly recommends hypodermic injections of caffeine and camphorated oil, which may be advantageously substituted by ether or some similar rapidly-acting stimulant. For the purpose of combating the disordered innervation of the cardiac pulmonary apparatus and the relaxed condition of the bronchial tubes and diaphragm, he believes that full hypodermic injections of strychnine is the best treatment, and he reminds us that as long ago as 1879 he highly recommended faradization or galvanization of the vagus nerve for the purpose of overcoming the vascular relaxation. In terminating his article he points out that atropine has been found an exceedingly valuable remedy, a fact which has certainly been well authenticated by American practitioners. The camphorated oil which he employs is prepared according to the following formula:

- ℞ Sterilized olive oil, 1  $\frac{1}{4}$  ounces;  
Camphor, 2  $\frac{1}{4}$  drachms.

Inject three or four hypodermic syringefuls a day.

Huchard states that the injections are not painful. For the purpose of producing diuresis he orders an exclusive milk diet and gives from twenty to forty-five grains of theobromine a day.

Should the tendency to pulmonary edema develop in persons suffering from arteriosclerosis, he believes that the iodides are useful. With this advice, however, the editor of this journal must take exception, unless they are employed with the greatest caution.

#### DOSAGE FOR CHILDREN.

The *Journal des Praticiens* of May 8, 1897, gives the following dose-table:

Cherry-laurel water, which is useful as a sedative, is not to be given to a child under three years. From three to five years thirty to sixty minims may be given each day, and from five to ten years from sixty to one hundred and twenty minims may be administered.

Of calcined magnesia, used as an antacid and laxative, up to fifteen months the child may receive fifteen to thirty grains a day; three to five years, forty-five grains to a drachm a day; and from five to ten years, one to one and a half drachms a day.

In regard to the administration of quinine to children, the best preparation to employ is the hydrochlorate. The doses for different

years are as follows: Up to one year, one to three grains a day; one to two years, three to four grains; two to three years, four to five grains; three to four years, five to seven grains; four to seven years, five to ten grains; seven to ten years, eight to twelve grains.

Quinine may be given mixed in a confection with honey, or in pill or cachet. Should the drug be given by rectal injection the dose should be doubled. It may be administered by the rectum in the following solution:

- ℞ Hydrochlorate of quinine, 4 grains;  
Warm infusion of chamomile, 2 ounces;  
Sydenham's laudanum,  $\frac{1}{4}$  drop.

#### THE TREATMENT OF CORYZA OR HAY-FEVER.

The *Journal de Médecine de Paris* of May 9, 1897, recommends the mucous membrane be touched with the following solution:

- ℞ Hydrochlorate of cocaine, 3 grains;  
Boiled water,  $\frac{1}{4}$  ounce;  
Neutral glycerin, 30 minims.

Or use the following ointment applied to the mucous membrane by means of smearing it on small tampons of absorbent cotton:

- ℞ Hydrochlorate of cocaine,  
Thymol, of each 3 grains;  
Subcarbonate of bismuth, 2 ounces;  
Vaseline, 1 ounce.

Or the following powder may be insufflated into the nostril:

- ℞ Powdered boric acid, 30 grains;  
Salicylate of sodium, 40 grains;  
Hydrochlorate of quinine, 3 grains.

Or any of the following may be used:

- ℞ Naphthalene in impalpable powder, 6 drachms;  
Boric acid (impalpable powder), 6 drachms;  
Powdered camphor, 15 grains;  
Extract of violets, 15 grains;  
Essence of roses, 20 drops.
- ℞ Menthol, 5 to 10 grains;  
Powdered boric acid,  
Powdered chalk, of each 40 grains;  
Hydrochlorate of cocaine, 7 grains.
- ℞ Menthol, 6 grains;  
Salicylate of bismuth,  
Sugar of milk, of each 75 grains.

#### A SOLUTION FOR SEA-SICKNESS.

The *Journal de Médecine de Paris* of May 9, 1897, quotes the following as being efficacious:

- ℞ Chloroform, 45 minims;  
Alcohol,  $\frac{1}{4}$  ounce;  
Aromatic elixir,  $\frac{1}{2}$  ounce.

Twenty to forty drops as needed.

#### TREATMENT OF WHOOPING-COUGH BY RESORCIN.

The *Medical Chronicle* for May, 1897, quotes from one of the French journals the following therapeutic point:

Dr. ROSKAM, in 1890, communicated the result of the treatment of twenty-five cases of whooping-cough by application to the glottis of a two to three-per-cent. solution of resorcin. Following the directions of Dr. Moncorvo, who suggested the method, he employed at first a ten-per-cent. solution of cocaine before applying the resorcin solution. He soon found it preferable to omit the cocaine application, as it occasioned severe spasms, and employed the resorcin solution alone. Eighteen of the twenty-five children were cured in about ten days. Three children, to whom the treatment was given for a few days only, and whose cough had ceased, had on the eighth day a relapse with violent cough. They were cured, however, in three weeks. Two cases proved refractory to the treatment; and two children who were in a very low condition died in spite of the treatment, which, however, diminished the number of attacks of coughing.

To confirm these results, Dr. Roskam has, since 1890, treated 290 children affected with whooping-cough by resorcin applications. Usually treatment was instituted during the first fortnight of the disease, but sometimes at a later stage. Although three of the cases were in a very low condition, he did not lose one of this series of cases.

In 200 patients cure was brought about before fifteen days had elapsed. Seventy were cured before the twenty-fifth day after commencing treatment, and eighteen before the thirtieth day. Lastly, two patients, a brother and sister, whose paroxysms of coughing had ceased after twelve days, had relapses on the eighteenth and twentieth days; after fifteen days' renewed application of the resorcin solution they completely recovered.

Dr. Roskam believes that children under two years of age are particularly susceptible to the action of resorcin. In the immense majority of cases under one year, cure was obtained in about eight days after commencing treatment. This fact may be due to the facility with which the applications may be made in very young children. Dr. Roskam thinks it advisable to delay the resorcin applications till the congestive period at the onset has passed and the paroxysms of coughing have become markedly evident.

Children under a year were treated with a

two-per-cent. solution. Those from one to two years had first a solution of two-per-cent., then one of three-per-cent. strength. Above two years of age a three-per-cent. solution was used. The applications were made every four hours during the day, from 6 A.M., and once or twice at night.

After two or three days' treatment—sometimes even after one day—the digestive functions improve. The patient eats and digests well, and becomes more lively. In five to six days the general condition becomes almost normal. The paroxysms of coughing still persist, but they are shorter, easier, and less frequent, especially during the daytime.

When the applications have been made for ten to twelve days it is advisable to suspend the treatment, even if the patient still has attacks of coughing. Very often cure is established; if not, after an intermission of five to six days the applications may be repeated for some days.

Dr. Roskam believes in allowing the children to have plenty of fresh air, if they have no fever. He has no confidence in pretended antiseptic fumigation of rooms, which often renders the air irrespirable and increases the number of the attacks of coughing. He points out how necessary it is to impress the parents that the cure of the children depends on the care with which they apply this method for some days. Usually, after a few days, the children submit readily to the applications.

#### THE TREATMENT OF WHOOPING-COUGH.

EROSS' observations were made in 874 cases; 832 were out-door patients; the remainder were seen in private practise.

The majority of the children were over two years of age; fifty-two were nurslings. The internal medication comprised the use of bromide of potash, tincture of belladonna, codeine, quinine, antipyrin, phenacetine, antifebrine, and bromoform. Resin of benzoin was insufflated into the nose. In the majority of cases the treatment was begun when the paroxysmal stage was at its height.

Bromide of potash and tincture of belladonna produced the least benefit. Quinine in some cases worked well—that is, when it could be given long enough and in sufficient doses. Small children refused to take it. It also acted unfavorably on the general well-being of the child, and the appetite under its use diminished. Of far greater value were antipyrin, antifebrine, and phenacetine, which were used in several hundred cases. The

drugs were given in syrup, coffee, or water. Unfavorable results, such as depression and prostration, never followed the administration of any of the coal-tar preparations. Phenacetine seemed to possess the least value; but from twelve to fifteen per cent. of the patients showed signal improvement under its use. Antipyrin gave the most favorable results. Thirty-five per cent. of the cases showed marked improvement.

None of the remedies mentioned above produced such an immediate change for the better, in convulsive attacks, as bromoform. Under its use vomiting and other complications were almost unknown. The convulsive character subsided almost entirely. The beneficial effects were noted in from forty-eight to seventy-two hours.

The insufflation of resin of benzoin gave the best results of all the remedies used. In sixty per cent. there was a marked improvement in the severity of the paroxysms, with a shortening of the course.

The beneficial effects were chiefly noted in diminishing the number of the paroxysms, the severity being controlled in a lesser degree. When no improvement follows four or five days' use of the insufflations it is best to discontinue the treatment. The powder must be blown not only into the nose but into the pharynx as well.—*Archives of Pediatrics*, May, 1897.

#### THE TOXIC EFFECTS OF IODOFORM DRESSINGS.

In the *American Gynecological and Obstetrical Journal* for March, 1897, McLEAN of New York concludes a paper on this topic as follows:

The toxic effects of iodoform may be conveniently classed in three groups:

1. Cutaneous irritation: Eruptions of the skin in erythematous or eczematous form associated with the pruritus of urticaria.

2. Cerebral disturbances: Headache often very marked; delirium more or less active; melancholia, hallucinations; the pupils occasionally dilated, but more often contracted and motionless; the pulse decidedly accelerated, running early up to 135 to 150 per minute; quality rather small and wiry; rapid increase of temperature.

3. Syncopal or asthenic form of poisoning: Patient overcome with dizziness, mental confusion, great lethargy; weak, rapid pulse; some paralysis of the sphincters, death coming sometimes suddenly by heart failure.

Inasmuch as we have shown that a peculiarity of the drug is its rapid absorption and its slow elimination, it is well to draw careful conclusions as to the significance of certain symptoms occurring in operative cases where iodoform plays a prominent part.

By so doing we may spare our patients much unnecessary suffering and not a little danger, and ourselves a secret agony which few conscientious men have been able to escape.

#### STROPHANTHUS: A CLINICAL STUDY.

WILCOX in the *American Journal of the Medical Sciences* for May, 1897, concludes an interesting clinical paper on this subject in the following words:

Fraser presents a most interesting study of the action of strophanthus upon the heart, finding it eight times more powerful than adonidin, scillitoxin, or erythrophlein; twenty times more than helleborein, thirty times more than convallamarin, three hundred times more powerful than caffeine. On the contrary, upon the blood-vessels digitalis acted fifty times stronger than strophanthus.

The advantages which strophanthus possesses over digitalis may be summed up as: (1) greater rapidity, modifying pulse-rate within an hour; (2) absence of vasoconstrictor effects; (3) greater diuretic power; (4) no disturbance of digestion; (5) absence of cumulation; (6) greater value in children; and (7) greater safety in the aged.

When we consider that although digitalis has been in use since 1785 in the treatment of cardiac disease, it is only within the past ten years that it may be truly said that its administration was productive of uniformly excellent results. That this is so is undoubtedly due to the fact that the greatest danger from its use—namely, the marked vasoconstriction—has been to a considerable degree obviated by the common practise of the co-incident administration of a nitrite.

Strophanthus was first brought to the notice of the French Academy of Medicine in 1865, but its first practical demonstration as a valuable heart remedy came twenty years later, when Fraser published the results of his long-continued and patient researches. With the wider and more rapid dissemination of knowledge which obtains at the present day, we may hope that within a comparatively few years we may have strophanthus used as carefully as is digitalis to-day. That it possesses distinct advantages over the latter drug is undoubted, and it is equally certain

that it is free from the greatest danger which the use of digitalis entails—namely, vasoconstriction.

We may say that success in the administration of strophanthus requires: (1) An active, well-made preparation from a reliable source; (2) avoidance of its use in the fully- or over-compensated hearts of those who present advanced muscular degeneration or mechanical defects of high degree; (3) the use of not too large or too frequently repeated doses. From my own observations the dose of five drops of a reliable tincture three or possibly four times a day is sufficient.

In conclusion, he believes that, considering the limitations just enumerated, strophanthus is the drug of choice in:

1. All cases in which we wish to establish compensation.
2. All cases of arterial degeneration in which a remedy which causes more energetic cardiac contractions is required.
3. All cases of cardiac disease where diuresis is necessary.
4. All cases of weak or irritable hearts.
5. All cases of cardiac disease in childhood or old age.

#### THE USE OF METHYLENE BLUE IN ALBUMINURIA.

In the *Journal des Praticiens* of May 22, 1897, LEMOINE of Lille makes a report upon this drug when used for the purpose of decreasing albuminuria. He believes that it exercises a very beneficial influence upon the kidneys, particularly in cases of chronic nephritis. The dose which he gives varies from three to five grains a day.

The following case may be cited as an instance of the result of this treatment: A man of fifty-eight years, suffering from chronic Bright's disease with renal congestion and albuminuria, was admitted to the hospital. On the 25th of February he was passing six grammes of albumen a day. He was given a modified milk diet and treatment with alkalies and tannin. Shortly afterward he was placed upon methylene blue in the dose of four grains a day. On the 3d of March he was passing four grammes of albumen; four days later he was passing two grammes; and on March 10 he was passing twenty grains.

The author cites other cases as illustrative of the good results which he has obtained in his opinion from this treatment; and he claims that while there is a decrease in the

albuminuria, there is apt to be an increase in the quantity of urea which is eliminated. In one case of chronic albuminuria with death due to erysipelas, the patient had been receiving methylene blue for several days. At the autopsy the kidneys were found enormously enlarged and contained cysts and gave evidence of sclerotic change. The methylene blue had stained the secreting portions of the kidney, but the fibrous portions had retained their natural color. He believes that this is an indication of the fact that methylene blue exerts a selective influence upon secreting epithelium of the kidney. He does not think that if pure methylene blue is used there is any danger of it producing cystitis. Copious draughts of liquids should be taken in order to flush the kidneys and prevent the drug from irritating the stomach.

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*THE AMERICAN PEDIATRIC SOCIETY'S  
REPORT ON THE COLLECTIVE INVESTIGATION OF THE ANTITOXIN  
TREATMENT OF LARYNGEAL  
DIPHTHERIA IN PRIVATE  
PRACTICE, 1896-1897.*

The committee recommends: Antitoxin should be given at the earliest possible moment in all cases of suspected diphtheria. Of the quality of the products on the market some have, by test, been found to contain one-half to one-third the antitoxin units stated on the label. Select the most concentrated strength of an absolutely reliable preparation.

All cases of laryngeal diphtheria, the patient being two years of age or over, should receive as follows: First dose, 2000 units at the earliest possible moment; second dose, 2000 units twelve to eighteen hours after the first dose, if there is no improvement in symptoms; third dose, 2000 units twenty-four hours after the second dose, if there is still no improvement in symptoms.

Patients under two years of age should receive 1000 to 1500 units, the dose to be repeated as above.

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*A PLEA FOR THE LARGER USE OF ERGOT  
IN OBSTETRICS.*

THOMAS MORE MADDEN in the London *Lancet* of May 29, 1897, thinks that the conditions and circumstances under which ergot may be employed in obstetrics may be briefly stated, although, as will be seen, the writer ascribes a wider range of utility to ergot in midwifery practice than is generally con-

ceded. Nevertheless the writer presumes to observe that his views are the result of actual clinical experience which it may not be easy to disprove by any merely theoretical objections, however strongly expressed. Judging from the recent literature of this subject it apparently is not superfluous to premise that to use any preparation of ergot safely and effectively in the labor cases referred to it is essential (1) that the presentation should be natural or cranial, except in some instances of breech presentation, in which it may possibly be necessary to deal at once with uterine inertia; (2) that there should be no marked disproportion between the fetus and the mother, or any other physical impediment to delivery in the genital tract; (3) that the os uteri, if not previously fully dilated, should be so dilatable as to allow of speedy extraction by the forceps when necessary; and (4) that the preparation selected, the dose, and the method in which it is employed, should be well calculated to produce the required effect.

Subject to the foregoing conditions, ergot may with utility be employed when actually indicated and judiciously administered either before, during, or after the second stage of labor. That is to say, it may be given before the full dilatation of a dilatable os in some instances of long delay from uterine inertia in which there is imminent danger to mother or child, or risk of subsequent flooding from further protraction of the case. During the second stage it may be employed in labor rendered abnormally tedious by deficiency of uterine action or otherwise complicated, and in which the presentation is natural and no other impediments to delivery exist, or for the prophylaxis of apparently impending flooding. During the third stage ergot may be resorted to for the expulsion of the placenta when retained by inertia, or for the arrest of loss of blood. After delivery this ecboic may be employed either immediately to check or prevent hemorrhage, or subsequently to produce tonic or permanent contraction, and, by sealing up the uterine vessels, lessen the liability to bacteriological invasion or sepsis; or else at the same time it may be exhibited for the purpose of expelling clots from the womb and so arresting after-pains. Lastly, in the majority of multiparous patients ergot may be administered during the puerperal period with the object of stimulating the muscular tonicity of the uterus, accelerating the process by which its return to a normal condition

after parturition is effected, and thus obviating the future possibility of chronic subinvolution.

To produce the desired effects in the cases above referred to it is obviously necessary that ergot should be administered in the form, dose, and method best calculated to secure speedy and permanent contraction of the muscular tissues. Under no circumstances, therefore, should ergot be given in obstetric practise in those small, utterly inefficient, and frequently repeated doses that have been recommended by several modern authorities, but which in the author's opinion are calculated to do more harm than good by producing irregular and evanescent waves of muscular contractility instead of that firm, regular, and tonic uterine contraction by which alone persistent inertia may be overcome, the fetus or the placenta expelled, post-partum hemorrhage prevented or arrested, retained clots and membranous or placental débris dislodged, and subsequent sepsis or still later subinvolution may be obviated. With these objects in view, in Madden's early days an extemporaneous infusion of the crude, freshly powdered drug was most generally employed, and though troublesome to prepare and nauseous to take, was of unquestionable ecboic activity.

#### THE TREATMENT OF PERITYPHLITIS.

The London *Lancet* of May 29, 1897, in speaking editorially of this subject, says it may be affirmed without fear of contradiction that the value of prompt surgical intervention in acute abdominal disease can hardly be more clearly shown than in the treatment of perityphlitis, now universally admitted to depend on inflammation and ulceration of the appendix vermiformis. It has been proved in numberless instances that by such intervention peritonitis has been averted or checked in its spread, and there can be no question that lives have been saved by this means. On the other hand, it is equally certain that lives have been sacrificed by unavoidable delay in having recourse to this radical measure. In spite of this general feeling of the necessity for resort to surgical aid, and the frequency with which it is sought, it is yet surely true that in the days before there was any idea of invoking the aid of surgery the disease was not characterized by any very great mortality. The lines of treatment were simple, and under their adoption the acute manifestations passed

gradually away, in the majority of cases perhaps never to return, though in a certain proportion of cases symptoms recurred at intervals under slight provocation. It is true, however, that this fortunate result was varied by cases where peritoneal or extra-peritoneal suppurations placed life in jeopardy, or were responsible for a long and weary illness that only ended in death; and there were also the cases of perforative peritonitis, which hardly come under the category that we are now considering, but fatalities from which may certainly be obviated by surgical procedure.

The impunity with which the surgeon can now fearlessly lay open the abdomen, and the satisfaction felt at the discovery of a gangrenous appendix and its removal, has perhaps rather led us to despise the *vis medicatrix* that must in past days have often effected a radical cure. It all turns on the old question whether the slow and somewhat hazardous processes of Nature are not better replaced by the rapid measures of the art of surgery, the whole aim and purpose of which is to anticipate the development of greater ill, which may eventuate if the disease is left to itself. We have no intention here to discuss the indications for interference; we might even admit that the operation can be justified in every case, even the mildest. But as exhibiting the other side of the question, we would draw attention to a paper by Dr. Kleinwachter, of Breslau, a former clinical assistant of the late Professor Biermer, who relates the experiences of the medical treatment of perityphlitis in that physician's wards in the years 1874 to 1889—that is, in the pre-chirurgical days of the treatment of this affection. Dr. Kleinwachter observes that in spite of the gratitude owing to surgeons for their researches on the subject, and the striking results that often ensue from their operations, it is difficult for the physician to admit that a disease which can in the majority of cases resolve without the aid of surgery should come to be considered as falling exclusively into its domain. He suggests that the only way to prove the necessity for this transference is by comparative statistics, and for that reason he has collected and tabulated details of the cases in Professor Biermer's clinic during the period named, none of which were treated otherwise than on medical principles. These principles aim at obtaining complete rest of the intestinal canal by the strictest attention to rest of body and to diet, as well as by the administration of opium. In more detail he describes the



treatment as consisting in keeping the patient absolutely at rest in bed, and the relief of the pain and fever by the application of iced water compresses or an ice-bag to the abdomen, the cold bag being replaced by warm applications as soon as the fever subsides and signs of exudation appear. From the outset opium or morphine is administered, no matter whether there be diarrhea or constipation. Professor Biermer took as guides for the continuance of the opium treatment the presence of pain and tenderness and abdominal distention, for whenever the colic recurred the patient was allowed to have another dose. Dr. Kleinwachter has known the administration of opium to have been continued for fourteen and even twenty-five days, and states that the resulting constipation was well borne, whilst other disagreeable symptoms, as hiccough, vomiting, and cough, were mostly controlled by the drug.

Restriction to a fluid diet of minimal proportions is a necessity; where there is a tendency to vomit and much thirst only ice is allowed, and gradually rice-water, lemonade, diluted red wine, then thin broths, and finally milk. The opium can be omitted when pain no longer recurs and the abdominal tension does not increase, but it must be resumed on the slightest return of pain. The bowels usually begin to act spontaneously from the fourth to the ninth day, and after two or three such actions they must be assisted by enemata or mild saline aperients, as bilin, or Carlsbad water. Much care is to be observed in the diet subsequently to the attack, and the patient should always be able to have recourse to a dose of opium, if at any time afterwards there is a return of colic. Should there remain any resistance in the ileo-cæcal region, due probably to adhesions or residues of exudations, it is recommended to continue the use of wet compresses and of warm baths. If the condition of the patient grows worse, the abdominal distention increases, the breathing quickens, and the pulse becomes more rapid, then the opium is still further pushed or replaced by morphine, the force of the heart being maintained. Professor Biermer was careful to refrain from large injections in lavage of the stomach or intestinal puncture to relieve distention.

If the foregoing be a correct account of Professor Biermer's practise, it will be seen to have mainly relied upon the prescription of opium, carried to an extent now rarely considered advisable, and that, too,\* manifestly when the case was assuming the fea-

tures of general peritonitis. At the present day in most acute inflammatory abdominal diseases the free use of opium is rather deprecated, as tending to mask the symptoms and delay the intervention of surgery until all reasonable prospect of relief by this latter means is past. It will therefore come as a surprise to many to learn that out of a total of 112 perityphlitic cases (three of which relapsed) so treated in Professor Biermer's clinic, only two died—a case-mortality of 1.78 per cent. One of these fatal cases had the ordinary characteristics of perityphlitis and had progressed so far that the opium was left off, when on the following day, after a sudden evacuation, a fatal coma supervened. The other, severe from the first, succumbed on the ninth day to diffuse peritonitis. All the rest recovered. Particulars were obtained of the after-history (up to 1889-90) of seventy of those patients who left the hospital—namely, of sixty-one out of ninety-eight who left it “well,” and nine out of twelve who were discharged “unrelieved.” Relapses had occurred in seventeen, or 24.3 per cent., and two of these were fatal. In five cases many recurrences had taken place, but in not a single one had the relapse supervened later than two years from the date of the primary attack.

These figures, which it must be remembered are culled from the practise of one hospital physician, and therefore may be taken as being based on a consistent line of treatment, are surely deserving of attention; for although there is, even amongst the most successful operators, a commendable recognition of the fact that in the majority of cases of appendicitis resolution may occur, there is still great uncertainty as to how far it is either right or justifiable to pursue purely medical treatment. The position is one of great delicacy and difficulty; for in contrast to these figures we have the statistics of St. Thomas's Hospital, given by Dr. Hawkins in his excellent monograph, which show that the general mortality from appendicitis amongst 264 cases was fourteen per cent., or twenty-six per cent. of those terminating in abscess, and seventy-five per cent. of those ending in general peritonitis. It is possible that had Dr. Kleinwachter been able to trace out all Professor Biermer's patients the mortality from recurrence would have been found to have risen, and each such case may be reckoned as one that might have been saved by a primary operation. But then, as in many the primary attack might not have

been of the severity held to justify such interference, no comparative conclusion regarding medical and surgical treatment can be drawn from them. And since few, if any, advocate the removal of the appendix as a routine measure, we seem to be unable to institute any comparison—at least, a statistical one—between the surgical and the medical method of dealing with the disease. The claim for Professor Biermer's treatment must rest not merely on a lower death-rate, but on its favoring resolution and averting supuration, which is in some cases the inevitable outcome of the lesion of the appendix. It requires more courage to act up to this belief than most of us possess, now that we have become more intimately acquainted with the nature of the underlying lesion, and the possible risk entailed by delay in having recourse to surgery. Therefore, although we cannot but admire the remarkable results which we owe to the industry of Dr. Kleinwachter, we the more incline to the opinion expressed in a recent text-book: "As soon as the diagnosis of appendicitis is established—indeed, pending its settlement—a competent surgeon should be associated with the physician, for the reason that in the vast majority of cases operative treatment is sooner or later demanded, while the hour for such treatment is best settled by daily conference."

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#### RESECTION OF THE GASSERIAN GANGLION FOR REBELLIOUS FACIAL NEURALGIA.

MARCHANT and HERBERT (*Revue de Chirurgie*, April 10, 1897, p. 286) report two cases of extirpation of the Gasserian ganglion for the relief of rebellious neuralgia, and they analyze ninety-three additional cases collected from the literature. Among the whole number there were seventeen deaths (17.8 per cent.). In sixty-six the temporal course was followed, with eleven deaths (12.12 per cent.), three of which were open to doubt; in twenty-nine the pterygoid course was followed, with six deaths (20.6 per cent.). Among fifteen cases of complete extirpation of the ganglion there were five deaths, three of which were open to doubt (13.13 per cent.). Among sixty cases of incomplete extirpation there were eight deaths (13.13 per cent.). Among fifteen cases of simple resection of the painful branches there was but a single death (a mortality of 6.66 per cent.). From a study of the literature of the subject the conclusion is reached that certain rebellious

facial neuralgias originate in the Gasserian ganglion, and the only treatment of these cases consists in destruction of the ganglion. When no appreciable lesion of the ganglion existed and its removal was none the less followed by a disappearance of the neuralgia, this result is to be explained by the destruction of a nervous center containing neurons or nervous cells whose prolongations only are affected by simple section of the nerve. The temporo-sphenoidal course is the best to follow for the removal of the ganglion. The finding of one of its branches, and especially the inferior maxillary, in the oval foramen constitutes one of the most certain guides for the detection and seizure of the ganglion. The ganglion may be completely extirpated. Commonly the extirpation is incomplete, and the ganglion is finally destroyed by curetting and crushing. Often only its branches have been resected. Hemorrhage, wounding the nerve, and cerebral compression are the immediate operative accidents to be feared. Secondly there may be infection, hemorrhage, iodoform intoxication, ocular disturbances, and otitis. As an immediate result of the operation there is a cessation of pain and also an abolition of general sensibility in the distribution of the three branches of the nerve, and especially in the second and third branches; but this does not persist long. Taste, smell, hearing and vision are variously affected. The movements of the jaw may remain impeded. From a therapeutic point of view recurrence is less to be feared after destruction of the ganglion than after simple resection of the branches. The evidence indicates that complete extirpation should be superior to simple destruction of the ganglion.—*Journal of the American Medical Association*, May 15, 1897.

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#### THE CAFFEINE TREATMENT OF HEART DISEASE.

In the *Nord Médical* of May 1 M. G. LEMOINE states that for fifteen years he has given caffeine every day to patients suffering from myocarditis, and he feels certain that this treatment has prolonged their lives by avoiding the various discomforts, attacks of oppression, and temporary asystole to which they had formerly been subject.

M. Lemoine gives an account of a case in which, owing to the permanent and prolonged use of caffeine, the patient enjoyed better health than for many years. The author refers to five similar cases, in the most recent

of which this treatment has been employed for three years. One case was that of an emphysematous subject with cardiac degeneration, in whom this treatment had been instituted seven years ago, and owing to the influence of the caffeine he had been enabled to resume his work.

M. Lemoine states that it is not necessary to employ large doses of caffeine in order to obtain these results; on the contrary he recommends weak doses, and as much as possible doses which vary more or less from day to day. This method has the great advantage of not accustoming the organism to the same dose always; consequently it is possible to continue the use of the drug without increasing the doses.

This method is considered the most logical by M. Lemoine, although he says it may be objected to on the ground of accustoming the organism to a drug and of the physician being obliged to gradually increase the doses until they become excessive. The author thinks, however, that he has answered this objection in presenting the facts themselves of the case referred to. He concludes that the caffeine treatment is indicated in patients who suffer from cardiac weakness due to a disturbance of the pulmonary circulation. He states that he has employed this treatment with admirable results in emphysematous subjects with heart disease.—*New York Medical Journal*, May 29, 1897.

#### THE ACTION OF TAKA-DIASTASE IN VARIOUS GASTRIC DISORDERS.

FRIEDENWALD, of Baltimore, in the *New York Medical Journal* of May 29, 1897, concludes an article on this subject as follows:

1. That Taka-Diastase exerts no influence under normal conditions upon gastric digestion, nor upon cases of nervous dyspepsia with normal motor and secretory functions.

2. That in cases of motor disturbances of the stomach with normal secretory functions, such as atony, Taka-Diastase increases the motor action without in any way influencing the secretory function or the digestion of starches.

3. That in cases of subacidity Taka-Diastase acts differently, according to whether there is a catarrh or a nervous dyspepsia. In nervous cases it has no effect whatever upon digestion, while in cases of catarrh it appears to have a tendency to increase the flow of acid and promote the digestion of starches.

4. That Taka-Diastase exerts its most favorable influence in cases of superacidity. It not only promotes the digestion of starches in these cases, but diminishes the excess of acid and increases the motor function.

5. That Taka-Diastase in a great measure replaces the saliva when this secretion is diminished or absent. It then not only digests the starches in the stomach, but serves the other function of the saliva in stimulating the gastric secretion and therefore promoting the proteid digestion.

#### THE NEW LOCAL ANESTHETIC HOLOCAINE.

HASKET DERBY in the *Boston Medical and Surgical Journal* for June 3, 1897, writes concerning this new substitute for cocaine. He points out that in an article on "Certain Dangers Attending the Use of Atropine," published a few years ago, he called attention to the possible danger of increasing intra-ocular pressure connected with the employment of the ordinary mydriatics. The well known fact that in glaucoma dilatation of the pupil increases and contraction of the pupil diminishes intra-ocular pressure long since led to the observation that the instillation of atropine and allied drugs might produce an attack of glaucoma in an eye predisposed to this disease. This observation was also found to hold good in regard to homatropine and even cocaine. But with the latter agent, used as it so generally is for the purpose of producing local anesthesia, the question of possible ill effects assumes peculiar importance; and, in point of fact, its employment for minor operations on the eye in the case of patients who have arrived at or passed the period of middle age has been seriously hampered by the foregoing consideration.

Other disadvantages are, moreover, found to occasionally attend the instillation of cocaine. General faintness, dizziness, and even vomiting, have from time to time been known to occur. Symptoms of cardiac disturbance, depending no doubt on some peculiar idiosyncrasy, are met with in some individuals.

Search has therefore been made for a local anesthetic that should be free from the disadvantages of cocaine. But none of the preparations experimented with have thus far proved wholly satisfactory. For one of the most recent of these, eucaïne, it has been claimed that no pupillary enlargement, and therefore no increase in intra-ocular pressure,

follows its use. But it causes local irritation, and therefore cannot be employed in inflammatory affections; and its repeated application has been found to finally give rise to pupillary dilatation. It offers no advantages over cocaine, and possesses peculiar drawbacks of its own.

In the January number of his *Centralblatt* Professor Hirschberg announces the receipt of a new local anesthetic, to which he at first gave the name of "amidin." He found its anesthetic effects on the eyeball to be prompt and entire, no local irritation and no pupillary dilatation following its use. He used it with success in the extraction of a traumatic cataract, the presence of which had already given rise to inflammation.

The February number of the same magazine contains a full chemical account of the new substance. Without going into particulars, it is sufficient to say that it is closely allied to phenacetine. It has a powerful local anesthetic action, and is highly poisonous if administered internally, even in minute doses. No local poisonous effect has been noted. It is soluble in boiling water, and should be dissolved in a porcelain vessel, as it causes glass containing an alkali to lose a portion of the latter, which clouds the solution. It has finally been baptized with the name "holocaine." The experiments at Hirschberg's clinic were continued, some forty-five cases having been subjected to its action. Anesthesia came on in from fifteen seconds to a minute, and lasted ten minutes. The instillation of holocaine was accompanied by a slight burning sensation, no greater than that produced by cocaine. The dryness of the corneal epithelium produced by cocaine was here wanting. No pupillary enlargement and no effect on the accommodation were observed.

It was, moreover, found that holocaine could be used in cases where cocaine was either contraindicated or failed to work, as for instance where there existed a considerable inflammation of the conjunctiva bulbi, attended by swelling. Its action was here entirely successful.

The solution of holocaine needs no sterilization, being in the strength of one per cent. itself bactericidal.

Holocaine possesses strongly poisonous properties, acting thus in one-fifth the strength of cocaine. When instilled in the conjunctiva no injurious effects have been observed.

In this new agent, then, we have a remedy that is likely to supplant cocaine in many

cases of ophthalmic surgery. Among its advantages may be reckoned the following:

1. It does not enlarge the pupil.
2. Does not affect the accommodation.
3. Does not increase intra-ocular pressure.
4. Promotes antiseptis.
5. May be used when cocaine is contraindicated.

*Per contra*, its poisonous nature prevents it from being used subcutaneously. And as it does not contract the vessels, operations done under its influence are likely to be attended by more hemorrhage than those performed under cocaine.

Dr. Tauber, who was the first to give an account of the chemistry of holocaine, says that it belongs to the class of ethenylamidins, its proper cognomen being *p*-diethoxythenyldiphenylamidine.

Dr. Derby early obtained some holocaine and at once commenced its use, begging at the same time some of his colleagues to employ it and give him the results of their experience. It had up to the date of his writing (May 26) been used in six operative cases and in ten others. The operations embraced three extractions of senile cataract, one of a dislocated lens, and one discission. Anesthesia was rapid and satisfactory in all these cases, the main contrast with cocaine being the slight flushing of the eyeball. In one case of trachoma, in which Dr. Standish did expression, anesthesia did not come on for over seven minutes, but was then complete. In the ten remaining cases holocaine acted as cocaine would have done, save that there was no effect on the pupil.

Since writing the above an article by Drs. Heinz and Schlosser has appeared in the *Klinische Monatsblätter* for April. They have been working with holocaine for the past four months. The foregoing statements are in the main corroborated. In their experiments one or two drops of a one-per-cent. solution generally brought about entire anesthesia in from forty to fifty seconds. When a second application was made, forty seconds after the first, entire loss of sensation invariably followed in thirty seconds more. The duration of the anesthesia is at least ten minutes. After the opening of the anterior chamber a second application was found to affect both iris and ciliary body, an iridectomy in a case of acute iritis causing no pain. This effect on the iris the author, too, has observed. He had used holocaine in a simple extraction of senile cataract, but finding it impossible to clear the pupil he was obliged to remove

a small piece of the iris after the operation was otherwise completed. No holocaine had been instilled since before the operation; and yet the patient, a nervous and apprehensive woman of seventy-two, suffered absolutely no pain.

In view of all this it would seem that with our present knowledge holocaine is likely to take the place of cocaine in ophthalmic surgery, except in cases where subcutaneous injection is required.

#### THE TREATMENT OF HEMOPTYSIS.

The London *Lancet* of May 1, 1897, summarizes this subject as follows:

The direct effect of drugs in arresting the hemorrhage which occurs in cases of pulmonary tuberculosis is very difficult to estimate with any amount of accuracy. The majority of cases tend to become spontaneously arrested, and any drug which has been given previously is apt to get the credit of stopping the bleeding. Dr. Deguy believes strongly in the value of full doses of gallic acid in this condition, and he gives this drug in doses of from four to fifteen grains in the form of powders, pills, or solutions. In cases where the hemorrhage is very severe he associates the gallic acid with ergotin, thus: Gallic acid 30 grains, ergotin 15 grains; make into twenty pills, of which five or more are to be taken each day. Others, however, do not put much faith in the action of these and other astringents of the same class, and it is difficult to see how such drugs can have any definite action on the bleeding vessels, the walls of which are generally severely diseased. The application of an ice-bag is also another method which is believed by some to be efficacious, while others will have nothing to do with it. It is, again, difficult to see how this method of treatment can be of any direct use except by mechanically assisting to keep the patient quiet. One of the most effective methods of treating an ordinary case of hemoptysis consists in giving a small hypodermic injection of morphine, which generally results in arrest of the hemorrhage, and the patient is at the same time mentally soothed.

#### THE RADICAL CURE OF EPITHELIOMA BY ARSENIOUS ACID.

The operative treatment of cancer has always been felt to be only a *pis aller*, often dangerous in its application, and always uncertain in its results. The fact that it has up

to the present remained the only measure at our disposal is conclusive evidence of the inadequacy of our therapeutical resources. It is not that other methods of treatment have been wanting, but without exception they have failed to fulfil the more or less sanguine anticipations of their discoverers and have consequently fallen into oblivion. Among the numerous remedies recognized in the treatment of cancer at various periods of the history of medicine, arsenic is certainly one of the most ancient. It has been tried internally, and as a local application; but even the temporary improvement occasionally observed by Billroth has not been obtained by other equally trustworthy observers. We are, however, asked by Drs. Czerny and Trunek, of Prague, to reconsider the use of this drug as a topical application in cancerous ulcer; and in an article published in the last number of *La Semaine Médicale* they certainly adduce results which appear to merit our attention. Their first attempts, with arsenic in powder, proved abortive, the thick scab which immediately formed effectually preventing any further action on the diseased tissues. They ultimately decided to make use of a solution of arsenious acid in equal parts of rectified spirit and water, of the strength of one part of the acid in 150 of the menstruum. So far, their observations have borne exclusively on ulcerated superficial growths, the histological structure whereof could be demonstrated by microscopical examination.

The first step is to thoroughly cleanse the sore by vigorously rubbing or scraping the raw surface. The effusion of a moderate quantity of blood is a desideratum, it being indispensable that the remedy should come into contact with the tissues in the presence of freshly exuded blood. The surface of the ulcer is then thoroughly moistened with the solution, shaken up before using, and allowed to dry, preferably without dressing of any kind. Some pain usually follows the application, but not of intolerable severity. A scab forms, over which the solution is applied daily. By and by the margins of the scab tend to separate from the subjacent tissues, and the treatment is continued until the scab is only retained in place by a few loose adhesions. These are divided and the scab removed. A fresh application of the arsenical solution is made, and if on the day following the resulting scab is thin, of a light yellow color, and easily detachable, it indicates that the tissues no longer comprise any trace of

cancerous growth. If, on the other hand, a dark-colored, firm, and closely adherent scab again forms, the whole treatment must be repeated. The thicker the resulting scab the more energetic should be the treatment—that is to say, the stronger should be the solution, the strength of which may then be increased from 1 in 150 to 1 in 100, or even 1 in 80. When the desired result has been attained there remains a granulating wound, covered with a delicate white pellicle, to be dealt with on general principles. The formation of cicatricial tissue may be minimized by the application of boracic-acid ointment along the margins of the ulcerated surface. The duration of the treatment varies from three to four weeks to as many months, according to the depth and extent of the lesion.

The procedure described appears to be especially applicable in cases of cancer of the skin not associated with glandular enlargement, and perhaps also in cancer of the tongue, in which the prognosis is so unfavorable and surgical treatment so unsatisfactory. The authors believe that the effect of the treatment is in part due to the alcohol, and they attach special importance to the presence of fresh blood on the ulcerated surface when making the first application. The remedy is a simple one, and admits of ready trial, and in view of the results which they are enabled to place on record the suggestion will doubtless receive in this country the attention which it appears to merit.—*Medical Press*, May 26, 1897.

#### TREATMENT OF HERPES.

In the *Journal des Praticiens* of June 26, 1897, the following prescription is recommended:

- ℞ Resorcin, 45 grains;  
Cocaine, 15 grains;  
Alcohol, 3 ounces.

This is to be applied by means of a swab to the herpetic spot.

#### THE DOSES OF SOME COMMON DRUGS FOR CHILDREN.

The following dose list of well known remedies is given by the *Journal des Praticiens* of June 19, 1897, for the administration of these drugs to children. First, it is pointed out that the hydrochlorate of quinine is readily absorbed from the skin, provided that it is applied with friction in the following form:

- ℞ Benzoated lard, 6 drachms;  
Hydrochlorate of quinine, 1 drachm.

It is also pointed out that the employment of antipyrin with the hydrochlorate of quinine seems to aid in the solubility and absorption of the quinine, and for this reason the following mixture may be given hypodermically:

- ℞ Basic hydrochlorate of quinine, 30 grains;  
Antipyrin, 15 grains;  
Distilled water, 2½ drachms.

Dissolve by heating, and give 15 minims at a dose.

[It is to be remembered that antipyrin when given hypodermically produces a great deal of pain, although its permanent effect is anesthetic.—ED.]

The dose of salicylate of sodium, which is recommended as an antithermic, analgesic, or antirheumatic, is as follows: For children up to fifteen months, three grains a day; from fifteen months to three years, eight to fifteen grains; from three to five years, fifteen to forty-five grains; from five to ten years, forty-five to sixty grains. [We would consider that these were large doses.—ED.]

In regard to salol it should be remembered that this drug possesses properties very closely allied to those of salicylic acid, and it is therefore a useful intestinal anesthetic. The dose is as follows: Up to fifteen months, one to three grains a day; fifteen months to three years, three to fifteen grains; three to five years, twenty to thirty grains; five to ten years, fifteen to sixty grains.

In regard to the dosage of sulphonal, it is not advisable to administer this drug prior to the third year. From three to five years two to five grains may be given; from five to ten years, five to ten grains may be given. Similar abstentions prior to three years and similar doses after this period hold good in regard to the hypnotic trional.

#### THE MAXIMAL DOSE OF CERTAIN DRUGS BY SUPPOSITORY IN THE TREATMENT OF CHILDREN'S DISEASES.

*La Médecine Moderne* of June 23, 1897, after emphasizing the valuable therapeutic results which are obtained by the administration to children of medicaments in the form of suppositories, proceeds to the consideration of the conditions in which medication by this means is desirable. It is of course to be employed in those instances where the stomach is so delicate that the administration of medicines by the mouth is not possible or is inadvisable, or where the child refuses to swallow the drug. For various reasons it is

evident that the use of suppositories is more advisable in the treatment of children than in the treatment of adults, and while it is entirely true that complete absorption of the drug may be obtained from the rectum, it must also be remembered that absorption is comparatively slow and that full doses must be administered.

In regard to opium it is interesting to note that this journal suggests the employment in suppository in the dose of one-sixtieth of a grain of the powdered drug for each year of the child's age, which may be administered every two hours if the case is urgent. Careful watch must be kept that toxic action is not developed, as evidenced by undoubted sleepiness or myosis, when the drug must be stopped.

In regard to aconite it is an undoubted fact that this drug is exceedingly valuable in the treatment of diseases of childhood, and it is best to give minute doses frequently rather than large doses at longer intervals. One or two drops of the tincture may be given for each year of the child's age, but not more than ten to twelve drops in twenty-four hours should be given for each year. [We consider this a large dose.—ED.]

In regard to belladonna, it is pointed out that this remedy also possesses very valuable properties. It is useful as a sedative for excessive cough, and also is useful to prevent griping. As much as one-sixth of a grain of the extract of belladonna may be given to a child of two years, divided preferably in three or four suppositories.

Digitalis in the form of its powdered leaves is absorbed with difficulty from the rectum. It is best, therefore, to use the tincture, of which four drops may be given for each year of the child's age, divided into two suppositories. [A large dose.—ED.] Larger doses than this should be administered with benzoate of sodium in equal parts, about two grains in each suppository, and two of these suppositories may be given each day.

One of the best ways of employing quinine in the treatment of diseases of childhood is by suppository, and antipyrin may also be given in the dose of from two to six grains in two or three suppositories. It is thought that children have greater resistance to this drug.

In regard to salicylic acid it is also said that the same tolerance exists, it being proper to give eight grains divided into three or four doses. One-sixth of a grain of extract of *nux vomica* may also be given to a child

of six years, divided in three suppositories; but it is best not to employ strychnine until the child has reached ten years.

A special recommendation of the use of iodine by the rectum is made; three to four grains for each year of the child may be placed in two suppositories, but half a grain is sufficient each day if the medicine is to be administered for a considerable period of time. [We would fear rectal irritation.—ED.]

The bromides may also be given in suppository.

#### *BLUE PYOKTANIN IN THE TREATMENT OF INOPERABLE MALIGNANT GROWTHS.*

In the *Journal of the American Medical Association* of June 26, 1897, SLACH describes his use of pyoktanin in the treatment of tumors, and adds a word as to the technique of the treatment, which varies with the location. The injection should be made under strict aseptic and antiseptic precautions. The skin where the needle is to enter should be thoroughly cleansed with bichloride solution. The needles may be long, short, or curved, but must not be of too small caliber, and should be boiled after using.

The author used the large hypodermic syringe and injected from one to two cubic centimeters of a two-per-cent. solution. This is more than twice as strong as recommended by Drs. Meyer and von Mosetig. The patient is given the pyoktanin pencil, one-per-cent. solution, or a two-per-cent. powder, as the case may require, to apply daily.

Thus far he has seen no untoward effects from its use. The only objection to it is that it stains everything with which it comes in contact, but what is the soiling of linen when compared with the following advantages: (1) Its analgesic effects are marked, as patients soon rest easily without the aid of morphine; (2) "the improvement of the function of the part involved"—the man who could hardly speak so as to be understood talked without difficulty after the third injection; (3) the improvement in general health which has taken place in all five of the writer's cases; (4) the element of hope that is added to the life of suffering man, brightening the remainder of his sojourn.

While he does not claim to have cured his patients, still he has relieved their pain and rendered them less burdensome to themselves and their friends. He agrees with Dr. Meyer in von Mosetig's conclusions, "that it has been proved by practise that parenchyma-

tous injections of inoperable malignant growths with pyoktanin can produce disappearance of malignant tissue, though in exceptional cases, and can heal neoplastic ulcerations."

Pyoktanin, when properly used, is certainly a palliative treatment for cancer that deserves an honest, hopeful trial, for by its use many have been relieved and some cured.

#### DIURETIC ACTION OF SALICYLIC ACID AND CAFFEINE.

SIEGERT (*Münchener Medicinische Wochenschrift*, May 25, 1897) concludes a study of this subject. In a case of chronic peritonitis salicylate of sodium in both small and large doses lessened diuresis, the specific gravity of the urine being increased. With pure caffeine there was constantly observed a markedly increased diuresis, but with caffeine sodium salicylate (diuretin) the opposite effect was seen, the caffeine diuresis being suppressed by the salicylate. Caffeine produced its most marked effect after a course of small doses of salicylates. The use of caffeine alone made tapping of the ascites unnecessary, owing to the absorption of all the edema, which, on the other hand, was increased by the use of salicylates. The author shows by experiments on animals how the salicylates can abolish the diuresis produced by caffeine. Thus it is undesirable to use the combination of caffeine and salicylates where a diuretic effect is aimed at. In one case where tapping had been done some ninety times, the use of caffeine made any further tapping unnecessary. The author has used caffeine with digitalis, and has found the diuretic effect very marked. It is desirable to use the insoluble caffeine in preference to the soluble combinations. The author would recommend the use of caffeine with or without digitalis in all cases of venous engorgement with intact kidneys in order to remove the edema by diuresis.—*British Medical Journal*, June 26, 1897.

#### A PLEA FOR VENESECTION.

In quite a long article on this subject in the *Australian Medical Gazette* of May 20, 1897, HAYWARD discusses his experience with venesection, and in conclusion states that the class of cases in which he recommends blood-letting may be summed up as those in which, from any cause, there is cardiac insufficiency and toxemia present in such a

degree as to endanger life. It is only in such cases that he has practised it, and consequently he does not feel justified in strongly recommending it in other instances. He believes, however, that the range of cases might be judiciously extended. For instance, in certain cases of acute pneumonia—those in which the fever is high and the delirium intense—it is not the lesion in the lung that gives rise to these symptoms; it is the acute toxemia, which has the effect of completely upsetting the nervous system, and inducing paralysis of the cardiac muscle. He believes that the withdrawal of a fair quantity of this poison-laden fluid would be fraught with great benefit. The writer is well aware that pneumonia was the stage on which the venesectioners and antivenesectioners fought fifty years ago, and victory was claimed by the latter inasmuch as their results were at least as good as those of their opponents, thereby proving at any rate that there was no necessity to resort to venesection. But a very palpable fallacy existed in this contention. All the cases of pneumonia were bled as a matter of routine by the advocates of blood-letting. The writer contends that the practice is only suitable in a certain type of the disease—the minority of cases—and that it would be decidedly wrong to adopt it in the remainder.

In certain cases of typhoid fever the writer believes we might bleed with advantage, but owing to the prolonged duration of the disease a very careful selection of those suitable would have to be made. He is fortified in this view by clinical experience. We must all have noticed how, when the headache has been intense, relief has followed a more or less extensive epistaxis, and a patient often improves after the occurrence of a moderate hemorrhage from the bowels. Very recently the author had a case in which no subsequent rise of temperature took place after such a hemorrhage, the patient rapidly improving. The trouble in these cases is that the hemorrhage is far from being moderate, and is too often repeated. The writer does not look upon these incidents as an example of the *vis medicatrix naturæ*, and therefore pointing to the treatment that should be adopted; he considers them as purely accidental, but none the less an indication of what result might be anticipated if the bleeding was due to artificial and not to natural causes.

Are we not too much afraid of the after-effects of bleeding? Is it not an almost every-day matter of wonder to us how pa-



tients recover after severe hemorrhage? Last year the writer had a patient, a gentleman over 80 years of age, who had a severe attack of epistaxis. He had lost a quart of blood before the author saw him and plugged the nostrils. In less than a week he had completely recovered from the loss, and was at least as well as he was before the occurrence.

In conclusion the writer says that although he has given expression to his own thoughts, and has endeavored to bring before the reader the conclusions he has formed from his own experience, he does not wish to be understood as having given anything novel. Doubtless venesection has most undeservedly gone too completely out of practise. If we use it with just discrimination, if we are guided by scientific principles in our use of it, if we do not follow in the footsteps of our ancestors and regard it as an empirical procedure, to be adopted in and out of season, he thinks that we shall have at our command an agent that, though terribly abused in the past, has been, and may be, instrumental in alleviating suffering and in averting death.

#### THE CUTANEOUS ABSORPTION OF IODINE.

LINOSSIER and LANNOIS (*Bulletin de l'Académie de Médecine*, No. 17, 1897) refer to the fact that if the healthy skin is painted with tincture of iodine a small quantity of the halogen is found constantly in the urine, and they have experimented as to the conditions under which this absorption takes place. They find that (1) tincture of iodine is absorbed by the skin in very small and inconstant quantities if the painted surface is freely exposed to the air; (2) if the surface is covered hermetically the quantity absorbed is much greater, in one case the amount recovered from the urine being nearly a third of that applied to the skin; (3) the greater absorption from the covered surface proves that the iodine enters chiefly by the skin itself, and not by the inhalation of its vapor; (4) the superficial alteration of the epidermis caused by the tincture, unless it has progressed to the destruction of the corneal layer, seems to act rather as an obstacle to absorption than otherwise, since it is during the first few hours after its application that the urine is richest in iodine, while the disorganization of the skin proceeds slowly; (5) iodine is also absorbed from iodized cotton-wool applied to the skin; (6) even under the

most favorable conditions this absorption is too inconstant in amount to be used as a general means of administering iodine; (7) iodoform and iodide of ethyl are absorbed by the healthy skin, the latter in such quantity as to be available, if necessary, for introducing iodine into the system.—*British Medical Journal*, June 26, 1897.

#### THE ACTION OF IODIDE OF POTASSIUM ON THE BLOOD OF SYPHILITICS.

COLOMBINI and GERULLI, working at the Dermato-syphilitic Institute in Sienna, find that iodide of potassium given by the stomach before any other drug, and in the early stages of syphilitic infection, causes an increase in the number of red corpuscles and the quantity of hemoglobin. If the administration is continued, sometimes a diminution of the red corpuscles, followed by a progressive and continuous increase, occurs; sometimes the increase is continuous and not interrupted by a decrease. When the iodide is stopped the red corpuscles and hemoglobin tend at first to diminish, but afterwards start afresh to increase. At the same time there is a notable and constant increase in body weight. The authors attribute the beneficial results of treatment to a specific action of the iodide upon the syphilitic virus. They believe that iodide of potassium in moderate doses, and over a moderate time, is the best remedy for the severe forms of chloro-anemia due to syphilis. A parallel series of experiments on the blood of healthy subjects showed that under iodide of potassium there was constant diminution of hemoglobin and of red corpuscles. The white corpuscles appeared unaffected. The body weight decreased, especially when the dose of iodide of potassium was progressively increased.—*British Medical Journal*, June 26, 1897.

#### FOUR SUCCESSFUL CASES OF TRANSFUSION OF SALINE FLUID.

*Apropos* of the numerous articles recently published in the *GAZETTE* concerning this means of treatment, the following facts named by RAW in a brief report in the London *Lancet* are of interest. He thinks there can be no doubt that we have in transfusion one of the most simple yet efficacious remedies in all cases of shock from hemorrhage. How far it is of service in cases of nervous shock and collapse is yet undecided, but in some cases it is of great

value. Larger quantities should be given than those generally recommended, four or five pints being a usual quantity. The writer has given as much as twenty-four pints at four injections within twenty-four hours without any apparent discomfort. He has noticed in several cases the occurrence of a rigor, commencing from half an hour to an hour after the operation and lasting about five minutes, with a high temperature. This seems to have no serious effect, the temperature quickly subsides, and recovery is not retarded by it. In a case reported by the author he says he has every reason to suppose that an acute attack of septic osteomyelitis was cut short by the transfusion, his explanation being that an increased volume in the vessels would offer a greater resistance to attack and at the same time dilute the blood-stream and so disperse the micro-organisms. If this be so, there is every reason to suppose that transfusion may be employed in acute specific diseases due to micro-organisms, as in any case it could have no other than a highly beneficial effect if performed with ordinary care and with a sterilized solution. The apparatus he uses consists of an ordinary glass funnel and tubing, with a glass nozzle for insertion into the vein.

#### TRACHEAL INJECTIONS IN THE TREATMENT OF LARYNGEAL AND PULMONARY INFLAMMATIONS.

J. A. THOMPSON writes to the *Journal of the American Medical Association* of June 26, 1897, on this rather heroic plan of treatment. He points out that there are several reasons for the slow growth of this manner of treatment in professional favor. The principal one is that few physicians are sufficiently expert in the examination and treatment of the upper air passages to employ it. As a rule they consider all lesions of the nose and throat as local, with but little influence on the health of the patient. This lack of appreciation of the importance of these conditions is largely responsible for the neglect of direct medication. Another reason for the limited use of intratracheal injections is the mistaken opinion that they are necessarily painful and irritating. Our ideas of the sensibility of the tracheal and bronchial mucous membrane have been erroneously deduced from that of the larynx. Below the glottis the nerves of sensation are few, and the membrane is not irritated by solutions much stronger than those we use in the

larynx. While these reasons have been potent in preventing the more general knowledge and use of this method, there are other and much better reasons for the general use of direct medication in inflammatory diseases of the larynx, trachea, bronchi, and lungs.

By the method of intratracheal injection we get the direct local action of the medicines on the diseased areas. In bronchiectasis no medicine given by the mouth will prevent the decomposition of the secretions in the dilated bronchi. The odor and the absorption of septic material from them cannot be controlled. A few tracheal injections will usually disinfect the cavities so that the odor disappears and the temperature becomes normal.

It is possible by intratracheal medication to produce a rapid and prolonged general effect. Anesthesia gives daily and hourly evidence of the rapidity with which volatile medicines are absorbed through the lungs, and their effect on the whole organism. From three to five minutes is a sufficient time for an expert to obtain chloroform anesthesia. You can produce as rapid an effect, and one much more durable, by injecting into the trachea medicines which volatilize slowly at the temperature of the body. Where a dose of menthol has been given in this way you will find the surface flushed in five minutes, the cold extremities have become warm, and sometimes the patient breaks out in a profuse perspiration. This stimulating action lasts for hours.

Medicines used by tracheal injections are not changed into unknown compounds by passing through the digestive organs. For this reason we can be more certain of their action. No one would think of treating a tubercular laryngitis by internal medication alone. There is just as much reason for applying medicines of known beneficial local action directly to the lungs as there is for using them in the larynx.

Where medicines are injected directly into the trachea they have no deleterious effect on the organs of digestion. Our valuable expectorants, such as are used in acute and subacute catarrhal diseases, act injuriously on the stomach and intestines. The name of one class, "nauseating expectorants," testifies to the universal recognition of this fact. The cure of a bronchitis by direct medication without interfering with nutrition is an advance in therapeutics.

Direct antisepsis can be secured by local medication. It is not possible to obtain this

result by remedies given internally. We are prone to forget that in tuberculosis we are dealing with a mixed infection. In the stage of ulceration and breaking down of tissue infiltrated by tubercular matter there is always a secondary infection by the germs of sup-puration. It is to these, in all probability, that most of the fever, the night sweats, and the other evidences of sepsis are due. We do not attempt to disinfect a leg ulcer by medicating the stomach. It would be just as rational to do so as it is to attempt to disinfect suppurating cavities in the lung by medicine administered per os. In cases where tracheal injections can be tolerated the anti-septic action of the remedies chosen will be very speedily shown by the subsidence of the cough, by change in the character of the expectoration, and by the decline in the fever.

The administration of medicines by intra-tracheal injections does not interfere with any other line of treatment. Diseases in other organs may be treated or tonics given, while local treatment of the lungs is being used, without any incompatibility. Where medicines are given by the tracheal rather than by the esophageal route we can relieve symptoms in hopeless cases without narcotics. We thus avoid their bad effects on nutrition. We also escape their secondary depressing action on the nervous system. A little menthol injected into the trachea will quiet a cough longer and more effectually than will a quarter of a grain of morphine given hypodermically.

Conditions not affected by constitutional medication can be cured by tracheal injections. Gummata in the lung, which resisted all other treatment, have been cured quickly and easily by direct medication of the suppurating cavities.

There are several conditions necessary for success in this method of treatment. The first essential is that the doctor himself be skilled enough in laryngology to do the work rapidly and delicately. The patient must possess a reasonable amount of self-control and be willing to follow directions implicitly.

It is probable that the medicines used for this treatment should be such as volatilize slowly at the temperature of the body. They should be soluble in the vehicle employed. The solutions used should not be too irritating. The most serviceable solutions are menthol, two-per-cent.; guaiacol, one-per-cent.; creosote, one-per-cent.; camphor, two-to three-per-cent. Any of these may be combined. In acute diseases the menthol

and camphor solutions are most efficient. In tuberculosis menthol and guaiacol give the greatest relief. Guaiacol gives good results in any septic condition in the lungs or bronchi. The vehicle used should be one of the light petroleum oils or olive oil. Alcohol and water are too irritating and produce violent coughing. There is ordinarily no spasm and but little cough or distress after an injection of the above solutions. The dose is from one to four drachms.

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#### *SOME POINTS IN THE TREATMENT OF SYPHILIS.*

In *Treatment* of May 27, 1897, C. F. MARSHALL tells us that the following observations deal with a few practical points which have occurred to the author during the treatment of a considerable number of cases of syphilis:

The primary sores of syphilis are of such a variable nature that it is often impossible to say whether a given sore will be followed by secondary syphilis or not, and consequently surgeons are divided in opinion as to how far such sores should be treated by mercury, some even going so far as to omit mercury altogether in the primary stage, and to wait for secondary manifestations to confirm the diagnosis.

Many apparently "soft sores" are followed by secondary syphilis, especially in females, among whom the typical indurated chancre is much less common than in males. Again, a soft sore appearing a few days after connection may, after a few weeks, become indurated owing to double inoculation. Enlargement of the glands in the groin helps us in diagnosis to a considerable extent, but must be regarded with caution. Distinctly hard and enlarged glands combined with much induration of the primary sore are of course almost diagnostic, but the so-called "shotty glands" are very deceptive, and may be felt in many persons after herpes prepu-cialis, or simple inflammation of the smegma glands of the penis; and in fact in some people without a sore at all.

The general rule for treatment he thinks should be not to treat any primary sore (in the absence of secondary manifestations) with mercury, unless it is a typically indurated sore with hard and enlarged glands in the groin. All other sores are doubtful, and it is better to wait for secondary events to occur before submitting the patient to a course of mercury. If mercury is given at once in such cases the diagnosis is still fur-

ther postponed, and even perhaps never cleared up till several months later; for we know that mercury delays the secondary symptoms, and in some cases makes them so mild in character that, unless the patient is examined several times a week, they may not be observed at all.

It may be urged that by adhering to this rule a certain amount of time will be lost in treatment in many cases. No doubt this is the case, but the writer thinks, it is better to make certain of the diagnosis than to try to save time by putting doubtful cases on a course of mercury. In any case the time lost is only a few weeks as a rule.

The two best forms of treatment during active secondary syphilis (and this applies also to primary cases where the diagnosis is certain) are: (1) intramuscular injections, and (2) inunction.

The best form of mercury to use is the double chloride of mercury and ammonia (sal-alembroth). Ten minims of this (containing one-third of a grain of perchloride of mercury) is injected into the gluteus maximus once a week, by means of a platinum-iridium needle. This method has the advantages of exact dosage, cleanliness, secrecy, and of personal administration by the surgeon himself. The only disadvantages are pain, which varies in different subjects, and sometimes induration of the buttocks at the points of puncture.

This, although an old method of treatment, is still one of the best, especially in cases such as iritis, where rapid mercurialization is required. The best preparation to use for inunction is the unguentum hydrarg. cinereum (hydrarg. 1 part, lanolin 1 part, olive oil  $\frac{1}{2}$  part). About half a drachm of this is rubbed daily into the skin. The rubbing should be continued for twenty minutes at a time, and different parts of the body used alternately. A warm bath should be taken before each inunction.

With either of these methods the symptoms usually disappear in from four to six weeks. Sometimes, however, cases are severe, and resist either or both forms of treatment combined. In such cases the biniodide of mercury and potassium often does much good, and in cases which resisted all such treatment the author has found much benefit from the double iodide of mercury and arsenic (Donovan's solution).

Whichever treatment is used, whether inunction or injection, it should be continued till all symptoms have disappeared. After

this it is sufficient for the patient to take mercury in the form of pills, either a grain of hydrarg. cum creta ter die, or two grains of pil. hydrarg. bis die, combined with one-eighth to one-fourth of a grain of opium. These should be continued for a further period of twelve to eighteen months, gradually reducing the frequency of the dose.

The well known dusting powder of calomel and zinc oxide is very useful for drying up condylomata, but the writer has had better results from naphthol (two to four drachms to one ounce of zinc oxide).

Naphthol in this form is especially useful in ulcerating condylomata, and also in the treatment of primary ulcerating sores, hard or soft.

Chromic acid (twenty grains to one ounce) appears to be the best application to ulcers of the buccal cavity and also to fissures of the lips. If, however, there is extensive sloughing ulceration of the tonsils and fauces, he has found chlorine by far the best application. A solution of nascent chlorine is obtained by acting on ten grains of chlorate of potash with a drachm of strong hydrochloric acid, and dissolving the gas in a pint of water. This is an old remedy for diphtheritic throats, but he has not known it used before in syphilis. It may be used as a gargle or it may be applied on a sponge.

We are all familiar with anemia occurring in syphilitic patients. However, it has been shown by Justus, of Budapest, that not only is there a diminution in the amount of hemoglobin in syphilis to a greater or less extent, but that there is a further diminution immediately after the administration of mercury; altogether after continuance of mercurial treatment the amount of hemoglobin ultimately reaches a higher level than that observed before treatment was commenced.

The anemia thus produced is sometimes severe, and requires treatment in itself. In such cases the writer has found arsenic of more value than iron, either alone or combined with mercury as Donovan's solution. The chief value of the latter drug would seem to lie in the power of the arsenic contained in it counteracting the tendency of the mercury to lower the hemoglobin in the blood.

There are certain points in the local treatment of tertiary sores which it is worth while to consider. It is true that the majority of syphilitic ulcers will heal under iodides with "ordinary dressings," but much time may be gained with more energetic local treatment

than that usually employed; even mercurial ointments and lotions may be much improved upon.

The best treatment for all tertiary and rupial ulcers is a two-per-cent. ointment of iodine made with lanolin and vaselin. Under this treatment the sores rapidly become clean and heal by healthy level granulation in much less time than cases treated in any other way, so far as discernible.

Sloughing ulceration of the throat is best treated with the chlorine lotion recommended for secondary ulceration.

#### A RESEARCH UPON SARSAPARILLA.

In the *Medical Chronicle* for May, 1897, LEECH gives a summary of the results obtained by Schulz in the Pharmacological Institute of Dorpat by a study of this drug. These researches by Schulz on the composition of sarsaparilla were made prior to 1892 under the direction of Professor Kobert, who has already set forth the general results obtained in the *Deutsche Medicinische Wochenschrift* of June 30, 1892. In the present paper the full details of the research are given, together with an account of the history and botany of sarsaparilla.

Opinions as to the value of this drug as a therapeutic agent have always differed widely. Even when it was most largely used there were many who, on the ground of experience, denied its potency, and now that it is relegated for the most part to popular or domestic medicine there are still some who hold, also on the ground of experience, that it has a curative influence in certain forms of disease.

It is manifest that if sarsaparilla has such an influence it must depend on some active substance the root contains, and Schulz's investigations have been made for the purpose of obtaining further information as to the nature of the active principle or principles.

As early as 1824 Pallota, of Naples, separated from sarsaparilla a substance, parillin, which was subsequently obtained in a pure state by Flückiger, who gave as its formula  $C_{40}H_{70}O_{18}$ , or  $C_{40}H_{68}O_{18}$ . This substance has also been called by some smilacin. Otten, in 1876, separated another substance, which Merck has since prepared commercially, viz., sarsaparillasaponin. To this substance the names of smilacin and sarsasmilacin have also been given. A third substance, sarsasaponin, has been obtained by Schulz.

These three compounds are supposed to

belong to a group of saponin substances, and differ in physical properties and pharmacological powers. Parillin is a crystalline substance insoluble in cold water. It is soluble in absolute alcohol, but in alcohol diluted with water it becomes less soluble as the amount of water is increased. Sarsasaponin is also a crystalline substance, but it is soluble in water. It dissolves only to a slight extent in absolute alcohol. In diluted alcohol it becomes more soluble as the amount of water is increased. Smilacin is soluble in water. As prepared by Merck for commerce it is amorphous, but it is capable of crystallization.

All three substances are glucosides, and when boiled with dilute acid yield glucose and a new compound, which, in the case of parillin, is called parigenin. The other two substances yield sarsasapogenin.

Schulz gives a long account of the reactions yielded by parillin and sarsasaponin, which are, however, only of chemical interest.

The pharmacological effects of parillin, smilacin, and sarsasaponin resemble generally those produced by the active principles of quillaia bark (quillagic acid and sapotoxin), but they are less toxic. Of the three parillin is the least powerful, sarsasaponin the most so. When taken by the mouth they cause salivation, nausea, irritation of the throat, vomiting, and diarrhea. Injected under the skin they cause abscess; introduced into the blood they tend to destroy the red corpuscles, and cause death after the lapse of several hours. They are not absorbed from the healthy stomach, nor when injected subcutaneously. They are excreted when intravenously injected by the intestinal mucous membrane, stomach, and kidneys; and Schulz says by the salivary glands also, but he gives no proof of this assertion. Like other saponin substances they powerfully influence muscle tissue when directly applied to it, causing contraction, rigidity, and loss of contractility. The motor nerve and endings seem to be killed earlier than the muscle. When circulated through the isolated heart of a frog they cause contraction of the muscle tissue, and limit the heart movements. They therefore decrease the volume of fluid expelled by each cardiac contraction, an effect which is the reverse of that produced by digitalis. Eventually the heart's movements cease, but if fluid which contains no poison be subsequently circulated through the heart, it recovers. If added to blood outside the

body, they have a powerful influence, causing solution of the red corpuscles. They are in this respect more active than many more toxic saponin-like substances, and it is worthy of remark that though parillin is distinctly the weakest in its general toxic effects and in its power of influencing the tissues, whilst sarsasaponin is the strongest, yet in its action on the blood parillin is almost as powerful as sarsasaponin, and distinctly more powerful than smilacin. Because of this action on the blood, all these substances cause hemoglobinuria and methemoglobinuria; eventually bilirubin appears in the urine. Owing to its effect on the blood, the subcutaneous and other tissues after death have often a yellowish aspect, and the exudations in the cavities are of a reddish color. In warm-blooded animals the intravenous injection of doses which eventually cause death leads to but little change in the blood-pressure or frequency of the heart's beat.

The three active constituents of sarsaparilla produce their most powerful effect on the intestinal canal, causing increased peristalsis and injection, sometimes inflammation of the large and small intestine, the contents of which (post mortem) are found to contain bloody mucus. Ulceration of the stomach and intestines is sometimes present. The urine usually contains blood-coloring matter when an animal is poisoned by the intravenous injection of parillin, smilacin, or sarsasaponin, and the kidneys are found (post-mortem) of a dark-red color, the tubules containing red-colored contents.

It is manifest that the pharmacological effects of the active principles which have been separated from sarsaparilla throw no light on its supposed curative influence on syphilis and other ailments. It is possible, indeed, that the increase in the flow of saliva which the saponin constituents tend to produce may have some beneficial effect in lesions connected with the mouth and throat; perhaps, too, the large quantities of fluid which were at one time taken with sarsaparilla preparations had a beneficial effect. But Schulz's researches strengthen the views entertained by the majority of physicians that sarsaparilla as a therapeutic agent has no important value. It has no ill effects because its active principles are not absorbed. Does it contain any other active principle which has not yet been discovered? The care with which the chemical examinations have been conducted by Schulz and other observers renders this improbable. Pereira, indeed, found in it an

essential oil, but as 140 pounds only yielded a few drops it is hardly likely that this constituent gives efficacy to the drug.

#### NOTE ON THE STATISTICS OF CARBOLIC ACID POISONING.

We have already called attention in the editorial columns of the THERAPEUTIC GAZETTE to the results of the studies of Dr. MANN on this subject. In the *Medical Chronicle* for May, 1897, he publishes additional facts, as follows:

In a paper on the statistics of carbolic acid poisoning, contained in the December number of the *Medical Chronicle* for 1896, it is stated that the number of suicidal deaths due to carbolic acid in 1895 could "probably show a geometrical augmentation corresponding in magnitude with that of the preceding year." At the time that this statement was made the annual report of the Registrar-General for 1895 had not yet appeared; it has since been published, and amply corroborates the above quoted forecast. In 1893, 117 persons (60 males and 57 females) poisoned themselves with carbolic acid; in 1894 the number had increased to 167 (82 males and 85 females); and in 1895 the total reaches 224 (114 males and 110 females). In the paper, which deals with the statistics of the decennium 1885 to 1894, it is stated that carbolic acid stands first in the list of poisons selected by women who committed suicide during that period, and that it ranks second as a suicidal poison among men; in the decennium 1886-1895 it heads the list of suicidal poisons with men, as well as with women. Since 1890, when the total number of suicides due to carbolic acid was forty-three, the number of deaths thus caused has increased year by year, until at the end of five years it is augmented more than five-fold. In the year 1895, 347 males committed suicide by poisoning; of these 114 resorted to carbolic acid, leaving 233 to be apportioned among the twenty-five remaining poisons which were used, apart from a number of suicides by poison in which the kind of poison is not specified. In the same year 233 females committed suicide by poison; of these 110 resorted to carbolic acid, leaving only 123 for the twenty-one remaining poisons which were used; again apart from a number not specified. It will thus be seen that one-third of the males and very nearly one-half of the females who poisoned themselves in 1895 did so with carbolic acid.

These figures speak eloquently in favor of some restriction in the sale of carbolic acid to the general public. Surely the time has come when a poison which accounts for 224 suicidal deaths out of a total of 580 caused by poison in one year—a proportion coming within measurable distance of one-half—should be placed out of reach of those who probably for the most part only for the moment estimate the value of life so cheaply as to throw it away in a fit of anger or of maudlin intoxication. It is not the writer's purpose again to go over the grounds for believing that, although restriction in the sale of carbolic acid would not save the equivalent of every life which is taken by that poison under the present state of the law, it undoubtedly would save a very large proportion of lives thus lost. When consideration is bestowed on the fact that in 1895 the number of suicidal deaths from opium—the poison which stands next highest to carbolic acid as a suicidal poison—amounted to only sixty-eight, carbolic acid accounting for 224, it must be allowed, for reasons previously given, that facility of access to a poison is a direct incentive to the suicidal act.

#### OCCLUSIVE DRESSING WITH AIROL PASTE.

P. BURNS, of Tübingen, recommends his airol paste in the highest terms as an ideal dressing for sutured wounds. It dries rapidly and sticks closely, is powerfully antiseptic, and absolutely unirritating to the most sensitive skin; but its chief advantage is that it allows the secretions to ooze through it. He has been using it for six months, especially after laparotomies, herniotomies, and ignipunctures, and has not had a single stitch-hole suppuration with it. He concludes with the statement that occlusion with airol paste insures in the simplest manner a flawless *prima intentio*. His formula is: Airol, mucil. gummi arab., glycerin, of each 10 parts; bolus albus, 20 parts. He uses it even in wounds with drainage.—*Journal of the American Medical Association*, July 3, 1897.

#### TREATMENT OF PROSTATIC RETENTION.

ENGLISCH (*Wiener Klinik*, April, 1897) gives elaborate instructions with many useful hints of practical import on the treatment of urinary retention, both acute and chronic, due to hypertrophy of the prostate. Whilst

advocating catheterism as a valuable and almost exclusive method in a large majority of cases of prostatic diseases, he points out the probable danger of such treatment and insists strongly on the necessity of avoiding as far as possible irritation and septic infection of the bladder and urethra during the use of instruments. Advanced prostatic disease is often associated with inflammatory conditions of the bladder and kidneys, and occasionally with uremia. In cases of recent retention in which the urine is secreted in full quantity, and in an apparently healthy condition, there may be a predisposition to urethral fever and other results from catheterism in consequence of: (1) Anomalies of renal secretion, especially diminished or increased secretion of urea, oxaluria, and diabetes; (2) tuberculosis; (3) altered condition of the blood, such, for instance, as occurs with malarial fevers; (4) impaired innervation; (5) alcoholism.

Before the first use of the catheter an attempt should be made to submit the urine to chemical examination. The author is in favor of the soft rubber catheter. In cases in which this cannot be passed he would use Mercier's catheter with either a single or double bend near the extremity, or the ordinary gum elastic catheters stiffened and suitably curved on wire stylets. In relieving the overdistended bladder the author lays great stress on gradual and interrupted removal of the urine. He lays it down as a rule that the longer the retention has lasted the slower should be the process of emptying the bladder. He would at first withdraw from 200 to 250 cubic centimeters of urine, and then inject about half this quantity of boric solution, and continue this procedure, which it is stated may take from twelve to twenty-four hours, until the bladder is completely emptied.

In many cases of prostatic retention, and especially in those in which the bladder is more or less paralyzed, the author would pass a soft catheter, and allow it to remain for several days. Such practise, which should be associated with frequent injections into the bladder and urethra with the view of preventing or removing symptoms of septic irritation, is held to be indicated (a) when the passage of a catheter is either very difficult or causes much pain, or is followed by urethral fever; (b) when the condition of the urine necessitates frequent injection of the bladder; (c) when the relief of the retention is followed by very frequent micturition; (d) when false passages exist; and (e) when frequent visits of the surgeon to a private

patient in the course of the day are very inconvenient, or impossible. With careful and frequent injections a soft rubber catheter may be retained from one to three weeks without causing any serious irritation of the bladder and urethra or incrustation of the instrument. It is acknowledged, however, that in many cases catheterism fails or does mischief, and it becomes necessary to have recourse to a cutting operation. Suprapubic cystotomy performed with the object of establishing a fistula or removing the enlarged prostate, and also perineal prostatictomy, are regarded as failures. On the other hand, ligature of the vasa deferentia and double castration have been followed by good results.—*British Medical Journal*, July 3, 1897.

#### BONE TRANSPLANTATION AS A SUBSTITUTE FOR AMPUTATION.

BARDEN-HAUER (*Revue de Chirurgie*, January, 1897) has lately resorted to division and transplantation of one-half of a healthy metatarsal bone for disease and death of an adjacent bone shaft. In cases of the partial or complete destruction of one of the metacarpal or metatarsal bones, by this method he has had in several instances the most gratifying results. Twice he applied this device to exterior destruction of the lower end of the radius. He has also executed a remarkably ingenious operation for the restitution of the upper end of the humerus, by detaching the spine of the scapula from its muscular attachments, cleaving through the ridge close to its base and freeing it on either end. He then transported this segment of live bone into the gap left by the removal of the destroyed shaft. The result, as in his other cases, was successful. In young subjects the scapular spine is reproduced, care being taken to always leave the periosteal investment behind.—*Journal of the American Medical Association*, May 15, 1897.

#### ANOTHER METHOD OF AMELIORATING BY OPERATION OTHERWISE INCURABLE INCONTINENCE OF URINE.

WILLIAM ALEXANDER (*The Lancet*, July 3, 1897) presents the following clinical history, which is of interest because of the treatment he devised:

Two years ago, on April 30, 1895, a woman aged thirty-four years came into the Royal Southern Hospital suffering from incontinence

of urine that had existed for the past fourteen years. She had always been delicate (tuberculous), and fourteen years ago she had diseased bone removed from the sacrum. It was after this operation that her urinary troubles began. At first she could not pass urine, then it began to dribble away, and she could not retain it for any length of time; and soon it flowed away constantly except when she was asleep, and then she would keep fairly dry for short periods. Examination on admission showed that she had no control over the rectum or urethra, the sphincters were quite flaccid, and the mucous membrane everted and congested. The uterus dropped down, and the lower part of the vaginal walls was everted. The whole vulva and perineum were congested, excoriated, and covered with salts and mucus that adhered to the hairs and skin, and the whole region looked, smelt, and felt very unpleasant. The idea of diverting the urine from the imperfect vesical reservoir into a rectal one, as had been done in previous cases, was not applicable here, as the rectal sphincter was paralyzed, and would not hold water. The author could find no reference to such a case in the manuals of surgery or in monographs on urinary diseases, and it was only after much thought that he determined to close the urethral opening, and make a permanent suprapubic opening as high as possible and to which an appliance could be fixed that would carry off the urine.

The formation of a suprapubic opening did not present any difficulties, as the bladder could be pushed up into the wound by the aid of a catheter. The bladder-wall was stitched to the wound in the skin, and the wound allowed to heal before the urethra was closed. The closure of the urethra is apparently a simple operation, but in practise the author found it very difficult. Suprapubic drainage is very imperfect. The tube in the bladder becomes surrounded by mucous membrane and is practically closed, whilst the urine issues by the side of the tube, and, worst of all, the forces of Nature tend to send the stream by the old channel, the urethra. Hence union of the plastic wound to close the urethra is not always or often sound along the whole line of the suture the first time, and several operations were required in this case before closure was complete.

Experience suggests the following directions to the operator who wishes to close the urethra: First, insert a thin elastic ring pes-



sary into the bladder through the suprapubic opening, which, when it expands, is to lie in the fundus vesicæ, with part of its circumference over the inner orifice of the urethra. This ring keeps the bladder from contracting, converts it into a pool that can be drained by a siphon, stops the natural tendency that exists to force the urine into the urethra, and blocks that opening. This extraordinary procedure was of great value, and the author would certainly adopt it again. Its insertion, retention, and removal did not present any difficulties or inconveniences, although theoretically it should have produced both. The urethra is best closed by splitting the mucous and muscular coats, turning the former in toward the bladder, and stitching together its raw and now external surfaces with numerous fine catgut sutures. The raw surfaces of the muscular coat are simply brought together by fine silkworm-gut sutures. The method of drainage is simplicity itself. It consists in the ivory nozzle of a Higginson's syringe, with the curves of the neck and body of the nozzle exaggerated so as to have the shoulder below the neck more pronounced. A rubber tube with a tap at the end that can be brought through the dress and so allow the bladder to be emptied with more than usual facility completes the apparatus. It is really self-retaining, but a bandage around the body prevents the ejection of the tube under any great strain or awkward twist of the body. When the tap is closed the urine, collecting, distends the bladder and the tube, and as these become distended the internal hydraulic pressure keeps the shoulder of the nozzle applied to the inner margin of the opening until the patient feels the distention and lets the water flow away. Dr. J. A. Craig and the author were planning all sorts of apparatus to fit the aperture and keep the patient dry, but they found that the Higginson's nozzle was more effectual than all perfect theoretical notions, and it took them some time to realize theoretically how such a simple contrivance was effectual.

The patient left the hospital on August 8, 1896. She came to show herself on March 17, 1897, with the apparatus in good working order, her skin quite dry and healthy, no urinary odor about her, and her linen clean and unstained. She can manage quite well, no urine escaping except a little sometimes at night when she is asleep. Her uterus is protruding, and they have recommended an advancement of the perineum to support it, but as far as the incontinence is concerned

the results have exceeded all their expectations. It supersedes completely the rectal reservoir idea, and does not come far short of affording all the advantages of the natural condition.

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#### LIMITATION OF THE USE OF THE UTERINE SOUND.

H. DAUCHEZ (*La France Médicale*, No. 19, 1897) relates how, in an anomalous case of pregnancy, he fortunately refrained from the use of the uterine sound, although there were many signs and symptoms pointing to the presence of a myoma of the uterus. He thinks that the use of the sound should be reserved for those rare cases in which the gynecologist is able to convince himself *de visu* that the menstrual flow has occurred, or in which he is justified in believing his patient's statement that she has not run the chance of becoming pregnant. He quotes with approbation Gingeot's reflection that "the fear of the hystrometer is the beginning of wisdom."—*British Medical Journal*, July 3, 1897.

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#### TUBERCULOUS ULCERATION OF CÆCUM GIVING RISE TO SYMPTOMS OF DISEASE OF THE APPENDIX.

HERBERT W. PAGE in *The Lancet* of July 3, 1897, places the following instructive case on record, for the simulation of the common symptoms of disease of the appendix was such as to leave little room for doubt as to the nature of the ailment for which the patient had sought relief, and for which operation was undertaken. Nevertheless, the appendix was free from disease, and tuberculous ulceration and narrowing of the cæcum were alone found after death to account for the symptoms. The case is therefore of further value in demonstrating that disease of the cæcum, and of the cæcum only, may cause symptoms likely to be attributed to the appendix, and that positive diagnosis may be in error. Happily, increase of experience is adverse to infallibility. In a recent paper in the *Clinical Journal*, entitled "A Demonstration on a Case of Appendicitis," Mr. Lockwood refers to a similar case which had been under his care, where he operated upon a youth who had had what every one considered to be two typical attacks of appendicitis. When the abdomen was opened it was found that he had acute tuberculous peritonitis, which was localized in the cæcum, in the vermiform appendix, the end of the

ileum, and the mesentery. Pain, which had been severe, was entirely relieved by the operation, but the patient ultimately died from acute general tuberculosis. The following is the author's own case:

A woman, aged thirty-six, admitted to the obstetric ward of St. Mary's Hospital on February 18, 1897, gave a history of having suffered from abdominal discomfort more or less for the past eighteen months. In May, 1896, she had an attack of pain in the right iliac fossa, accompanied with vomiting and constipation. Attacks of the same kind, two or three in number, but of less severity, followed at intervals, and in one which occurred shortly before her coming to the hospital a distinct lump had been felt in the iliac region. Uterine and ovarian disease had been excluded. The author was asked to see her, and under anesthetics was able to feel a small, hardish lump in the cæcal region. Local indications and history seeming thus to point to disease of the appendix, the patient was transferred to the author's care, with a view to operation as soon as the temperature became normal and quiescence should be established after her last attack. With careful dieting and rest in bed this was accomplished, and she became comparatively free from pain. The patient, although emaciated and pale, seemed to be in a favorable state for operation, but the author must acknowledge that he did not like the persistent hardness of the lump. There were scars on her neck from an old suppuration, but there was no present reason to suspect that she was the object of tuberculous disease.

The exploration was undertaken on March 30, the cæcum being exposed in the usual way and by the usual incision. It was at once obvious that no ordinary condition of things was present. Adhesions, old and firm, bound a tolerably hard lump the size of a hen's egg, which involved the cæcum, both to the abdominal wall and to the iliac fossa. The appendix was found and removed, but there was no trace of disease in it, and further exploration had to be abandoned by reason of the impossibility of separating the adhesions. Successful removal of the hard cæcal lump seemed to be out of the question; bleeding was therefore stayed and the wound was closed. The patient went on perfectly well for a few days, and then without apparent reason began to vomit. Local indications of wrong were markedly absent, but on the third day she suddenly collapsed and died in a few hours without attempt at

rally. Perforation was suspected, and the author deemed it useless to interfere.

The cæcum was much ulcerated and thickened by chronic inflammation, and at its juncture with the ascending colon was a stricture half an inch in length of almost cartilaginous hardness, and so tight as only to admit the passage of a small probe. Circumferential thickening and contraction accounted for this, and section showed that the induration passed into the surrounding areolar tissue after the manner of an infiltrating growth. On the cæcal side of the stricture there was extensive ulceration, and perforation had taken place at a point contiguous to it. No ulceration was found elsewhere. In front of the duodenum, in the position of one of the meso-colic glands, was a gland the size of a small flattened orange, which on section presented the aspect of caseous material, but was not soft. Another smaller gland lay close beside it. There was an old scar just below the apex of the right lung. Microscopical examination of the several diseased parts was made, and the appearance in the gland very strongly suggested tuberculous disease in the neighborhood. The bowel showed chronic inflammation, without sign of either sarcomatous or carcinomatous growth, and although not definitely tuberculous it was almost certainly of this nature. The stump of the appendix showed nothing more than some inflammatory thickening. Commenting on the notes Dr. Poynton remarks: "The case would appear to be one of chronic tuberculous ulceration of the colon and its junction with the cæcum, resulting in stricture, with secondary ulcers, which, from the slight amount of induration, were perhaps not tuberculous, but the result of the obstruction. The glands were affected in the same chronic way."

#### *TUBERCULOUS CYSTITIS.*

In treating this subject from an experience of 116 cases, Professor GUYON emphasizes first of all the immense importance of general therapeutics, which applies to all forms of cystitis. There is not the danger of irritating the bladder in tuberculous cystitis that there is in other forms, hence the diet should be abundant and extremely nourishing. Creosote ranks first in the medicines. He has also found cod-liver oil useful. Local treatment must be very cautiously applied as the bladder is exceedingly sensitive. It should be examined as little as possible and irrigation avoided. But the local treatment is

extremely important and should be commenced from the first, confining it to very weak solutions. He found boric acid, etc., injurious in any form, and restricts himself to sublimate and guaiacol. The sublimate is more effective; it is beneficial even in very weak solutions and in merely suspected cases. Four out of thirty-three patients treated with it were completely cured, five much improved, and eight moderately. He begins with a 1-to-5000 solution, raising this to 1-to-3000, and reducing the strength at the slightest evidence of irritation. It must always be borne in mind that the bladder cannot stand even the weakest solution in any form but gradual instillations: thirty to forty drops are enough; fifty the maximum. The general treatment should be continued months, even if all the symptoms have long ceased. The surgical treatment was high cystotomy in sixteen cases; one recovery, two improvements, seven deaths, and six negative results. Better results were attained with the perineal drainage. With this in seven operations five were very much improved, one died, and one was not affected. Nine women curetted *per urethram* were all very much benefited with one exception.—*Journal of the American Medical Association*, July 3, 1897.

#### MIDWIFERY AND DISEASES OF WOMEN.

H. LUDWIG, principal assistant in Chrobak's Clinic (*Wien. Klin. Woch.*, 1897, Nos. 11-12), records nine cases of rupture of the uterus. In the first the rupture occurred during the extraction of a decapitated breech; the head was subsequently removed by laparotomy. In the second the rupture was diagnosed before delivery, and Cæsarian section performed. In the third a rupture arose during version; the child was extracted, and the after-coming head perforated. The fourth was a case of craniotomy, which terminated the labor, after which the rupture was discovered. In the fifth, also, craniotomy was performed, the rupture not being diagnosed with certainty before birth. In the sixth there was again uncertainty; delivery was effected after decapitation. The last three were all diagnosed; they were delivered by craniotomy, perforation, and cutting through the cervical vertebræ respectively.

With regard to diagnosis, Ludwig insists on the valuelessness of individual symptoms such as collapse, bleeding, sudden and severe pain, recession of the formerly fixed presenting part, cessation of pains, etc. He has

found the best diagnostic signs to be: (1) in lateral rupture the interruption of the natural contour of the uterine quadrant, either a projection or a nodule being formed; (2) abnormal mobility of the uterus; and (3) emphysematous crackling at the seat of the rupture. If the head presents and can be pushed back, bimanual examination under deep narcosis should lead to a certain diagnosis.

With regard to treatment, delivery may be effected *per vias naturales*, or by laparotomy. The former is indicated when a large part of the child is already fixed in the pelvis, and also when the diagnosis of uterine rupture cannot be made with certainty before delivery. In cases in which the child remains in the uterus after the rupture, or has only partially passed into the abdominal cavity, delivery *per vaginam* is only to be preferred when it cannot be carried out without losing time or increasing or complicating the tear—for instance, in head presentations and the absence of contraction of the pelvis, also where rupture takes place during an operation. Laparotomy is indicated when the whole child has passed into the abdominal cavity, when the passages are not fully dilated, in contracted pelvis, in severe hemorrhages, and in injuries to the neighboring organs. In partial passages of the child into the abdomen, or with a living child still in the uterus, Cæsarian section is the correct procedure when natural delivery would take too long and be fraught with danger to the mother.

As regards treatment after delivery, of Ludwig's nine cases three came into the hospital and were operated on—two by supravaginal amputation and one by abdominal hysterectomy; all recovered. The remaining six were treated outside; five were operated on—four by supravaginal amputation, one by abdominal hysterectomy—of which one recovered and four died of sepsis. There was no death from hemorrhage except in the remaining case, which was not subjected to operative interference.—*British Medical Journal*, July 3, 1897.

#### TREATMENT OF VARICOSE ULCERS WITHOUT REPOSE IN BED.

With AUBOUIN's method the patient resumes his occupation without inconvenience or delay, and the dressings only need changing as the secretions find their way through the bandages. He first renders the limb aseptic and dusts the ulcer with iodoform, xeroform of aristol, or dermatol, smearing

the adjoining eczematous region with Lassar's paste (pulverized starch and white zinc oxide, each 20 grammes; vaselin, 40 grammes). After this Unna's glue paste, melted, is applied over the whole limb. (Formula: Water and glycerin, each 80 grammes; gelatin and zinc oxide, each 20 grammes). A starch tarlatan bandage is applied outside of this with moderate compression, and an outer bandage to prevent soiling, when the patient is dismissed to his usual occupation. The appearance of pus is the only indication for a change in dressings. They are easily removed after soaking in a warm foot-bath.—*Journal of the American Medical Association*, July 3, 1897.

#### THE PUBIC SYMPHYSIS IN PARTURITION.

EDWARD A. AYERS, in the *American Journal of Obstetrics* for July, 1897, after discussing this subject at length, gives the following directions:

Secure full dilatation of the cervix, if possible without risk to the child.

Have the urethra and bladder held to one side with a sound.

Make the initial incision a little above the subpubic arch and under the elevated clitoris.

Introduce the left index finger within the vagina, against the posterior groove or ridge of the joint, up to the top.

Pass a narrow tenotomy knife, with the point close to the joint, up to within a half-inch of the top, and under the overlying soft tissues.

Substitute a probe-pointed bistoury and meet the left index finger with the probe over the top of the joint, and work the blade through the joint downward until separation is felt by the posterior finger.

Have an assistant press the mouth of the wound and the tissues lying over the joint with a small piece of gauze.

Deliver with forceps, if possible, and refrain from suprapubic pressure, aiming to deliver the head through the cervix without drawing the latter down below the symphysis.

Hold the bladder well to one side while pressing the pubic bones together.

Pass a small strip of gauze into the prepubic wound, and another against the cervix, after irrigating, leaving both pieces exposed for easy removal, having refrained from stitching cervix or perineum.

Introduce a soft-rubber retention catheter into the bladder and leave it until sure the patient can voluntarily micturate.

Dress the vulva with gauze and strap the joint with adhesive strips.

Remove all the gauze in thirty-six hours and irrigate vulva and vagina twice a day, keeping the vulva carefully dressed between times.

#### ON EFFUSION INTO THE KNEE-JOINT.

DUER (*British Medical Journal*, July 3, 1897) gives the following simple manner of ascertaining the presence of a very small quantity of fluid in the knee-joint:

The knee-joint being slightly flexed, and laid on its outer side with the inner side in a good light, on making pressure with the hand above the patella the skin on the inner side of the patella will be seen to rise. In this way a small quantity of fluid which will not give a sense of fluctuation to the hands may be clearly demonstrated.

#### THE EXTIRPATION OF HIGH RECTAL CANCER.

HERBERT SNOW, in the *British Medical Journal* of July 3, 1897, details his method of procedure in high rectal cancer in the case given below:

H. B., aged fifty-seven, coachman, applied on May 5, 1896, with an advanced cancerous infiltration, apparently of four or five years' duration, high up the rectum. The forefinger could barely touch the border of a hard, woody mass, implicating the entire circumference of the gut; the growth was, however, very mobile. Cutting down on this in the usual way with gentle traction, the author made a small longitudinal incision through the diseased part, passed his left forefinger within the bowel, and was thus enabled to pull down the mass, dividing the healthy tissues above upon the finger-tip as a guide. Six inches was removed. The man made an uneventful recovery, and though troubled with fecal incontinence remains free from any trace of "recurrence"

If a malignant lesion high up the rectum be fixed, no operation will effect its extirpation; if movable, it will nearly always be found possible to radically excise it by the above plan without resort to the very severe measure which bears the name of Kraske.

Vulsellæ always tear through, whereas the finger thus used brings down the lesion without difficulty, while also controlling hemorrhage. There can be no more risk of sepsis than is involved in section of the bowel by any other mode.

*TREATMENT OF PENETRATING WOUNDS  
OF THE ABDOMEN.*

VULLIET (*Revue Médicale de la Suisse Romande*, July 27, 1897) has tabulated wounds of the belly treated by surgical intervention. These prove what has been abundantly shown before, that immediate operation is indicated when the viscera are probably wounded. The author in his endeavor to prove his case indulges in some ingenious statistical juggling which seems unnecessary and is certainly not convincing.

His *résumé* is as follows: Surgical intervention in case of penetrating gunshot wounds of the belly gives a gross mortality of 46.34 per cent. and what might be termed an expurgated mortality of 24.14 per cent.; abstention gives a mortality of 48.89 per cent. Penetrating wounds of the belly by cutting instruments treated by operation resulted in a mortality of 14.78 per cent., expurgated 10.09 per cent., whilst abstention resulted in a mortality of 37.04 per cent.

*SIX CASES OF LUPUS VULGARIS  
TREATED BY KOCH'S NEW  
TUBERCULIN.*

MORRIS and WHITFIELD (*British Medical Journal*, July 24, 1897) have published an elaborate paper detailing the history of six cases treated by Koch's new tuberculin. Koch's latest method of preparing his tuberculin is as follows:

Dry, virulent cultures are pulverized in an agate mortar. The powder is then diffused in distilled water and the fluid centrifugalized from the sediment, which is again dried and powdered and again centrifugalized, the process being repeated until no sediment forms. The fluid from the first centrifugalization he calls T.O., and it contains all the toxins of the old tuberculin. The other quantities of fluid derived from centrifugalization are similar in constitution, and he calls them T.R. It is this T.R., containing not the toxin but the components of the bacilli themselves, which is now in use.

Guinea-pigs were rendered immune by this fluid and then inoculated with virulent tubercle bacilli. They manifested no disturbance either locally or remotely. Guinea-pigs in which immunizing treatment was incomplete suffered from tuberculous glands near the site of injection, but no tuberculosis of internal organs. Those which were inoculated first and injected afterwards became tuberculous, but showed signs of healing as immu-

nity began to set in. In man lupus was much improved, and phthisis without great suppuration seemed to improve also.

Koch lays stress on the following points: Begin with a small dose ( $\frac{1}{100}$  milligramme). Raise the dose as rapidly as possible, taking care not to excite constitutional reaction. Never give a second dose until the temperature has fallen to the normal point or near it. Koch thinks immunity commences one or two weeks after the injection of the larger doses (0.5 to 1 milligramme).

Morris, summarizing the effects of the new tuberculin in the order in which these were observed, noted: (1) A diminution of the surrounding halo of redness in those cases in which this had been present to a marked degree before the commencement of the treatment; in cases in which there were simply yellowish-brown nodules in a white scar, the injections produced no visible effect at this stage. (2) The next change noticed was a slight depression in the center of the nodules, leading to wrinkling, and later to desquamation of the cuticle. Then there occurred (3) steady healing of all ulcerated surfaces; and (4) slow subsidence of the previously permanent edema of the lips, ears, etc. In two cases actual disappearance of the characteristic lupus nodules was observed—in one case on the upper lip, and in the other on the eyelid. In other cases there was distinct shrinking of nodules with diminution in the scaling of the surface. Another marked effect of the injections was the softening and flattening of preexisting scars. In no case has there been the slightest sign of progress in the disease since the treatment was begun. This fact is especially noteworthy in regard to one case, which had previously shown a very marked and ever-increasing tendency to recurrence and extension under so many forms of treatment.

As regards the immediate effect of the injections, there is at first little or no reaction, although in some cases a feeling of heaviness and drowsiness is complained of. When the larger doses are reached there is, as may be seen from the temperature charts, considerable febrile disturbance, sometimes with headache and pains in the limbs, and even some trouble in breathing, and a general feeling of depression with broken sleep. Locally the erythema is generally increased, and the whole affected area, including even old-standing cicatricial tissue, is swollen. In two cases, however, in which there were sound scars, probably from previous lupus, no re-

action was observed in the scar. The phenomena of reaction quickly disappeared, and then the patients without exception described themselves as feeling better than they did before. As showing how slight comparatively is the general reaction following the use of the new tuberculin, it may be pointed out that in two cases the patients were going about, and only came to the hospital from time to time to have the treatment applied. The authors, however, do not think that this course is advisable as a rule.

On the whole they find that the local effects of the new tuberculin in the cases of lupus vulgaris in which they have tried it have been uniformly good, in some cases distinctly brilliant. The constitutional disturbance has in no case been severe, and has always been of a very transitory character. As far as can be judged at present, the injections do no harm whatever.

#### *PURULENT OPHTHALMIA OF THE NEW-BORN.*

Of the many dangers threatening the newly-born infant, ophthalmia neonatorum is the most to be dreaded. It is stated that one-third of all the blind in Europe become so from this cause. Its early recognition and unremitting treatment are of the utmost importance. In every obstetric case the physician should gently separate the lids of the infant, to assure himself definitely of the presence or absence of any eye discharge. Infection from the maternal passages manifests itself almost invariably by discharge on the third day, both eyes being affected, as a rule. Discharges appearing at a later period usually arise from soiled hands, towels, sponges; and only one eye may be primarily attacked. This conjunctivitis is never due to strong light or cold, as is popularly supposed, but has a definite specific origin.

Following a discussion of the Medical Society of Breslau concerning Cr  d  's method of treating such cases with the aqueous solution of nitrate of silver (one grain to a drachm of distilled water), twelve thousand question blanks were sent out to physicians, with results that form an important contribution to the subject. These blanks were distributed throughout Germany, Austria, Switzerland, Belgium, and Holland. Reports were returned, giving statistics of eye diseases in 302,971 new-born infants. Of these, 1938 suffered from ophthalmia neonatorum. In Germany, sixty per cent. of eye diseases was

of this nature; in Austria, eighty per cent.; and in Switzerland, Belgium, and Holland together, ninety per cent. In all these cases the characteristic condition appeared within five days in seventy-six per cent. of the infants under observation. The discharge began after the fifth day in twenty-four per cent. In one-fourth of the entire number of cases, one eye was attacked primarily; in three-fourths, both eyes were affected simultaneously. Seventy-one per cent. were completely cured; nine per cent. discontinued treatment; twenty per cent., or one-fifth of the 1938 cases, retained permanent lesions of more or less severity.

This twenty per cent. with permanent ocular defects presented corneal scars, monocular or binocular; and one-half of these permanently damaged infants became totally blind. It was considered they were brought too late for cure—fifty per cent. of the blind babies were not seen until the ninth day of their disease, and twenty-five per cent. not until the fourteenth day.

Out of one hundred representative ophthalmologists consulted, seventy-nine were in favor of making Cr  d  's method obligatory in routine obstetric practise. It is not difficult, does no harm, and may avert dreadful catastrophe. The eyes are first carefully washed with tepid water, and the lids thoroughly cleansed by means of absorbent cotton. A few drops of the two-per-cent. solution of nitrate of silver are then instilled into each eye. Materials used to wipe away the discharge must be burnt or otherwise destroyed. Twice daily some simple ointment should be applied to the margin of the lids, to prevent them from sticking together. In severe forms, when there is much swelling and a thick discharge gushing from between the lids, the foregoing nitrate of silver solution may be used every six hours. When the inflammatory action subsides, Muskett recommends that weak solutions of alum, sulphate of zinc, and perchloride of mercury be substituted. The astringent lotion may consist of from four to ten grains of alum or from one to two grains of sulphate of zinc to the ounce of water. Either of these may be used with freedom and safety. The mercury solution gives excellent results—one-half grain of the perchloride to six ounces of distilled water. Cold-water compresses give great relief after active treatment.

Should ulceration of the cornea ensue, in spite of active and earnest measures, the eserine treatment introduced by De Wecker

may prevent perforation in even the worst cases. Four grains of eserine in one ounce of distilled water is the strength usually employed, though sometimes one grain to the ounce is better borne. A few drops are instilled into the eyes six times a day. This treatment is also of value in a form of corneal affection peculiar to infantile purulent ophthalmia, mentioned by Nettleship, in which the cornea becomes rapidly and almost entirely opaque. Whatever the degree of ulceration, marginal ulcers are not so serious as those centrally situated, and sight may be preserved. More than in any other disease, Dr. J. Lewis Smith urges the necessity of employing faithful and attentive nurses, who will carry out punctually the directions given. Two nurses are required, one for day and the other for night duty, since it is essential that the eye be frequently cleansed and the secretion washed away.—*Medical Record*, March 13, 1897.

**OPERATIVE TREATMENT OF CHRONIC  
INFLAMMATION OF THE MID-  
DLE EAR.**

MALHERBE (*Revue de Chirurgie*, June, 1897) having observed much improvement of hearing after free exposure and scraping of the mastoid antrum and auditory meatus in cases of chronic suppuration of the middle ear, has been led to apply a similar treatment with certain modifications to patients suffering from dry chronic otitis. Five cases are reported, in which the results of this treatment proved so satisfactory as to favor the assumption that exposure of the antrum and middle ear is indicated in cases of non-suppurative chronic otitis, which has not been relieved by other means. The main objects of the operation advocated by the author are free exposure of the mastoid antrum, which usually is contracted and surrounded by eburnated bone in cases where such treatment is indicated, and removal by gouge and mallet of the bone between this cavity and the middle ear. Any adhesions that may be found are carefully divided, so that the chain of ossicles may be set free. No attempt, it is stated, should be made to detach the base of the stapes from its normal connections. The following rules have been suggested to the author by the experience hitherto acquired of this treatment: Operative treatment, he holds, should not be attempted on patients of advanced age. In cases in which the operation is indicated it

should be performed early, before deafness has become pronounced, and subjective noises have increased to such a degree as to be almost intolerable. It would be useless to operate in cases in which there is no longer any cranial perception of sound. One ear only, and that in which the trouble is more severe, should be treated at the first operation. Experience has shown that an operation on one ear may be followed by an improvement on both sides.—*British Medical Journal*, July 24, 1897.

**OSTEOPLASTIC EXPOSURE OF THE ORBIT  
AS A MEANS OF FACILITATING RE-  
SECTION OF THE FIRST  
BRANCH OF THE  
TRIGEMINUS.**

CAHN (*Centralblatt für Chirurgie*, 1897) in a case of recurrence of orbital neuralgia removed the central stump of the already resected nerve by means of an osteoplastic resection performed through the orbit. The patient, fifty-two years old, suffered from right supraorbital neuralgia, for the relief of which the nerve was avulsed in the typical manner in 1893. The patient had relief for a year. Gradually pain returned and grew steadily worse. In 1897 the attacks of pain recurred every three to five minutes. In spite of morphine the patient could not sleep and was steadily losing strength. Pain recurred in the distribution of the supraorbital nerve, and tactile sense had returned. During the paroxysms of pain there was lachrymation. An incision was made along the right supraorbital ridge, but the nerve could not be found. From each extremity of this cut two vertical incisions were carried down to the bone; a skin, periosteum and bone lapping was chiseled loose and turned up. The remains of the spongiosa and the vitreous table of the frontal bone were removed, the dura mater was carefully lifted up, and the orbital wall of the cranial cavity was exposed. With a small chisel and cutting bone forceps the opening was enlarged. The frontal nerve with its clubbed, thickened end was found just below the periosteum; this was freed as far back as possible, and a little over an inch was torn over.

This was followed by iodoform tampon and reposition of the bone flap. There was no change in the patient's condition for two days. On the third day the pain gradually subsided, and on the sixth it was completely allayed. The wound was then closed by secondary suture and healed promptly.

The patient's general condition improved rapidly, and four months later he was completely well. There was no limitation of motion of the upper eyelid, nor were the motions of the eyeball interfered with in the least. On deep pressure into the orbit the opening could be felt in its upper wall.

This method is applicable not only to the extirpation of the first branch of the trigeminus, but also to the removal of foreign bodies which lie above or to the outer side of the eyeball.

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**ARREST OF HEMORRHAGE IN HEMOPHILIA BY THE APPLICATION OF HEALTHY BLOOD.**

Dr. BIENWALD has employed this very original method in the case of a child aged two years, the subject of hemophilia. Having failed to arrest the hemorrhage from a small wound on the face by the application of perchloride of iron, he obtained some blood by aspiration from a healthy subject and deposited it on the wound. In a few minutes it coagulated, and the hemorrhage at once ceased. His explanation of the action of the remedy is that it supplies the ferment necessary for thrombosis in the small vessels. Whether this is correct or not it is impossible to say in the absence of definite knowledge of the pathology of hemophilia. As affording his explanation some support we may mention the success obtained by Dr. A. E. Wright in his experiments with a solution of fibrin ferment and chloride of calcium as a styptic. Dr. Bienwald's ingenious method certainly deserves a trial.—*The Lancet*, July 10, 1897.

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**EXCISION OF THE RECTUM.**

PAUL (*The Lancet*, July 10, 1897) reports a second series of cases of excision of the rectum. A paper on the first series of fourteen cases was published in *The Lancet* of February 23, 1895. They were all malignant; thirteen were carcinoma and one was sarcoma. The present series is composed of two cases of syphilitic stricture, two of villous tumor, and ten of carcinoma.

In the first series of cases attention was called to one of squamous-celled epithelioma, which started in the mucous membrane of the bowel. In this series there is another. It occurred in a woman aged forty-seven years, and caused a tight stricture one and a half inches above the anus. It infiltrated the vagina, but evidently did not originate there,

as the vaginal mucous membrane was intact. Such abnormal forms of carcinoma probably grow in "rests" or in tracts of tissue such as give rise to rectal dermoids. Finally, in this connection, the evidence is again in favor of colloid being decidedly more malignant than cylindrical-celled carcinoma.

The methods of operation used may be arranged as follows: (1) Perineal incision, which suffices for the removal of about three inches of bowel—more in the female; (2) the same, combined with excision of the posterior wall of the vagina, which gives a great deal of room—the vagino-perineal operation; (3) posterior median proctotomy for the removal of small growths with subsequent suture; and (4) the sacral operation of Kraske. In none of these cases has the upper part of the rectum been removed by abdominal section.

Partial excision of the rectum through the perineum is a very successful operation. It is generally in these cases, in which the growth is small and situated near the anus, that we may hope for a long immunity. Growths higher up are longer in attracting the patient's attention, and the glands of the meso-rectum are often involved before they are recognized and sent for operation. If the patient is able to bear the complete operation it is always better to excise the entire circumference of the bowel in all cases in which the removal is too extensive to permit restoration of its caliber by suture. In those cases in which the writer has removed a growth from the posterior wall and left part of the anterior wall and anus, the discomfort from mucous discharge and prolapse has been considerable, and he has found it desirable to subsequently cut away all exposed mucous membrane. In fact, the subsequent discomfort from these slight operations has generally far exceeded that of the removal of six or seven inches of bowel.

The vagino-perineal operation is a good one, but it is of course essential to restore the vagina and perineum. The author once saw a patient upon whom this operation had been performed without restoration, and the result was deplorable, for the whole of the pelvic organs prolapsed from want of support. When the diseased parts have been excised the stump of the rectum is brought out at the posterior end of the wound, attached to a glass tube, the remains of the elastic wall of the vagina sutured in front, and deep silver sutures are passed between the two and a very long perineum procured. Generally the anatomical result is excellent.



The posterior median proctotomy for the removal of small growths with subsequent restoration of the bowel is perhaps the most interesting operation. A long backward incision is made, carried up over the sacrum if the tumor is in the middle third, and the bone is cut across and turned as a flap to the left side. The rectum is then opened in the middle line, and the disease examined with the finger. If it is a short stricture the entire circumference is excised; if an oval patch, then only the affected part. In either case restoration is best effected by sutures and not by Murphy's button. Having sewn up the wound made in the bowel for the removal of the growth the posterior lineal incision is closed, the sacral flap is restored, and the anus forcibly dilated to paralyze the sphincter. In some cases the result of this operation is nearly perfect.

The sacral operation of Kraske is, of course, the most serious. The incision is made as in the last case, the coccyx, or coccyx and lower part of the sacrum, being cut across and turned to the left. It is important to retain these bones, as when their support is lost the bowel may prolapse badly unless the special truss recommended in the previous paper is worn. Having exposed the bowel, if the growth is high up it may be cut across below, and the anus left intact; if not, dissect it entirely up from below. There is no value in the lower piece of bowel, only its removal makes a larger wound. Next, with constant use of compression forceps and aneurism needle below the knife or scissors, clear the bowel until the meso-rectum is cut away and the peritoneum freely opened; then draw down as much as is necessary to insert a glass tube above the growth, ligature it in, and cut off the latter. Enough bowel must be drawn down to allow the end to be brought out of the wound without tension. The sacral flap is then restored, the bowel connected to the skin with sutures, and the rest of the large wound in front packed with cyanide gauze.

The author states that he has tried by various ingenious methods to approximate the upper and lower ends after extensive removal, and is persuaded that any such attempt is bad practise when the excision exceeds two, or at most three, inches of bowel. The healing is longer and more dangerous, and the result little, if any, better. The use of a sacral flap in place of cutting away the bones is a distinct improvement. All the Kraske cases describe themselves as

having little or no loss of control over their bowels; in fact, they are more inclined to stricture than a patulous anus with prolapse.

The best result is obtained when a small growth or short segment has been removed and the parts have been satisfactorily united by sutures. The next best is after the complete removal of the lower end of the bowel, whether by the perineal, vagino-perineal, or sacral operations; it does not matter how much is removed, so that a clean end is brought out and the natural support of bones or perineum is made good. The worst anatomical results follow when a lot of exposed mucous membrane is left with a long slit-like anus, or when the support of the perineum or sacrum and coccyx is wanting.

Clinically there are many circumstances which influence the success of the operation, apart from the physical powers of the patient and the skill of the surgeon. The chief of these are: (1) Early recognition of the disease. This means that either it is low down or has rapidly formed a ring stricture. In the majority of cases the early symptoms are slight, and when the patient seeks advice the tumor is already large. (2) The nature of the growth. In innocent tumors the result should of course be cure, though in operating through the anus this does not appear to be the case with villous tumors. A villous tumor is generally a sufficiently serious affection to call for posterior median proctotomy. Of malignant tumors the usual cylindrical-celled carcinoma of the part offers the best prospect; squamous-celled epithelioma perhaps the next best; colloid and sarcoma the worst. (3) Involvement of glands. Wherever the writer finds malignant glands in the meso-rectum he always regards the case as certain to have a recurrence. Occasionally the glands may be recognized before operation, but usually they are concealed by the tumor. (4) Age. The younger the patient the less the chance of permanent cure. The rectum is the earliest of all sites for true carcinoma.

In regard to the survival of his cases after the operation, the author kept them under observation carefully. Of the first series of fourteen all were cases of malignant disease. One was certainly cured; several survived for from one to four years. Of the first fourteen cases of malignant disease, the last of which was operated on more than three years ago, two died from the operation; three are cured; one was under observation for ten years, and the other two for four years. One more he is almost certain is cured, although he has lost

sight of him after two years. The remaining eight averaged just two years of life after the operation, all of them dying from recurrence. In the author's judgment there are very few parts of the body where better results can be obtained when dealing with cancers of considerable dimensions.

In regard to the second series of fourteen cases, four are non-malignant; they are well and likely to remain so. Of the ten cancer cases two died from the operation, and two more have died since from recurrence—one at the end of twelve months and the other at the end of six months. This has been rather an unlucky series of cases, many of them having had enlarged glands in the meso-rectum at the time of the operation. He predicts that one only will prove a cure, a woman aged sixty-four years, who had a cylindrical-celled carcinoma  $2\frac{1}{2}$  by  $1\frac{1}{2}$  inches on the posterior wall of the rectum about two inches from the anus.

The mortality is exactly the same for both series—that is, fourteen per cent.

#### REMARKS ON CANCER OF THE UTERUS.

From observation of many cases, often seen too late for relief, and from the statistics of skillful operators, LANPHEAR (*International Journal of Surgery*, August, 1897) has reached the following conclusions as to the advice the attending physician should give his patients regarding operation:

As soon as a diagnosis of carcinoma of the cervix is made—provided the disease is unquestionably not too far advanced for any possible benefit at the time of first operation—radical operation is indicated.

Whenever there is a fungus growth upon the cervix (especially in a patient near the menopause) which persists in spite of treatment, even though there is no ulceration and but little tendency to spread. It is probably the papillary form of carcinoma cervicis; and there is always involvement of the mucous membrane of the body, so that high amputation will not cure.

When there are one or more nodules in the mucous membrane of the cervix, which soon ulcerate and destroy the mucosa. Such trouble is almost invariably the nodular variety of carcinoma of the cervix.

When there is an infiltrate in or beneath the cervical mucous membrane just within the os, which soon breaks down and destroys the cervix by erosion. It constitutes the variety known as cancer of the cervical mucous

membrane and may change when viewed through the speculum.

When there is evidence of the existence of cancer of the parenchyma of the uterus, even if the cervix seems to be perfectly normal. Such cases are not rare.

Whenever a glandular endometritis becomes inveterate, showing a tendency to degenerate into a typical malignant adenoma at the menopause; as indicated by (a) the appearance of irregular hemorrhages; (b) the presence of a serous, reddish, odorless discharge; and (c) paroxysmal pain.

In all cases where there is even a strong suspicion of malignant disease. In early operation lies safety.

Hysterectomy should not be performed under the following conditions:

Whenever the disease is so far advanced that the uterus is fixed in the pelvis.

Whenever it is certain there is extensive cancerous infiltrate in the broad ligament.

Whenever the cancer involves the bladder.

Implication of the posterior wall or even of the anterior part of the rectum is not necessarily a positive contraindication to operation.

When the "cancerous cachexia" has become pronounced.

When the patient is too weak from repeated, exhausting hemorrhages.

Whenever the diagnosis of sarcoma of the uterus is quite certain. Such cases always recur after removal and die quickly.

Palliative operation should be advised when there is marked sepsis; removal of the sloughing mass with the sharp curette and the subsequent use of douches of solution of permanganate of potash followed by insufflations of pyoktanin will greatly prolong life.

When there is excessive hemorrhage. In such cases curettage followed by cauterization and the after-treatment just mentioned will be of much benefit.

When pain is very severe. Even hysterectomy as a mere palliative measure is sometimes advisable, the pain being much less marked in recurring carcinoma in the pelvis.

#### THE RESTORATION OF MUSCULAR FUNCTION AFTER INJURY.

KNOTT in the *International Journal of Surgery* for August, 1897, publishes a paper with this title, in which he says probably the most common muscle injuries are wounds. We are concerned with only two varieties of

these—incised and lacerated wounds. The incised wounds of muscles are, as a rule, easily repaired, as there is little or no loss of tissue. The cut edges should be accurately adjusted with quilted catgut sutures, and the part immobilized for at least two weeks.

Lacerated wounds of muscles very frequently seriously threaten the future usefulness of the part. These wounds should be sterilized with unusual care, then cleared of all shreds of muscle tissue, and the severed edges trimmed so that they may be accurately sutured. If, after trimming the ragged edges, it is found that the destruction of muscle tissue has been too extensive to permit the approximation of the ends, the gap may be abridged with catgut sutures which will furnish a framework along which the connective tissue will more quickly and firmly close the gap than if no attempt at approximation is made. In a wound involving two or more muscles of a group, as those of the forearm or leg, care is necessary that the proper ends should be united. If only one end of a muscle so situated can be found, it may be sutured to an adjacent muscle having a similar function.

After repairing the injury to the muscles the underlying fascia should be carefully sutured to prevent hernia of the muscle, which may occur through a gap left in the fascia, and considerably impair the muscular strength. Should this occur it may be diagnosed by unusual prominence of the muscle at that point during contraction, and should be treated by freshening the edges of the rent in the aponeurosis, and neatly closing it with stitches.

Muscular contractions frequently follow improper attempts at repairing muscle injuries, or those injuries which result in the loss of considerable of the substance of the muscle, and may produce sufficient deformity or interfere so materially with muscular functions as to demand operative interference. This condition is best met by some of the various plastic operations upon the tendons.

Deposits of bone may occur in the muscle as the result of irritation produced by constant friction, or the presence of an excessive callus following fracture. Should this be very painful, or interfere with the muscular power, it should be removed.

The tendons are subject to much the same injuries as the muscle tissue proper, and if not properly treated muscular function and power may be seriously impaired.

In the process of repair of tendons the

new tissue generated is identical with that of the tendons themselves, and the rapidity with which this regeneration occurs depends upon the degree of approximation of the edges. When the severed edges are brought accurately together and retained with sutures firm tendinous union will occur.

Rupture of a tendon should always be treated by accurately suturing the divided ends with chromicized catgut, as owing to elasticity of the muscle the proximal end will be withdrawn some distance from the distal, and union will occur slowly and imperfectly, or not at all.

Several ingenious methods of suturing tendons have been devised, the object being to effect firm and perfect apposition of the ends. These methods are known as Le Fort's, Wolfier's, Esmarch's, Le Dentu's, and Trnka's, and are all quite similar.

The suture known as Le Fort's is at the same time the simplest and best of these, and is a method which the author claims he devised and used one year before Le Fort published his description of it. It is very easy of execution and is performed as follows:

Both ends of the divided tendon having been secured, a small needle armed with catgut is introduced about the middle of one side of the proximal end of the tendon, brought out in front, reintroduced, and brought out upon the opposite side. Then each end of the suture is introduced in the sides of the distal end of the tendon, brought out at the center, and firmly tied.

This suture retains the cut or torn surfaces in perfect apposition, allowing no gaping at the suture line, and may be very rapidly inserted.

Wounds of tendons are of frequent occurrence, and are often overlooked, the incision in the skin and fascia being closed, and no attempt made to repair the damage to the tendons. The tendons underlying any wound should be carefully examined before the wound is closed, and if severed should be united. If there has been no loss of tissue the two ends may be easily approximated and retained by the means described above, although it is frequently necessary to extend the incision to recover the proximal end, which owing to the contractility of the muscle is often withdrawn some distance from the wound. It may at times be secured and drawn down by introducing a narrow-bladed pair of forceps into the tendon sheath, seizing it and withdrawing them.

When so much of the tendon tissues has been destroyed as to prevent the direct approximation of the several ends, there are various ways and methods by which we will be able to restore the lost muscular power. If the ends of the tendon sheath can be brought into apposition, this should be done, as the tendon will regenerate along the path made for it. If the ends of the sheath cannot be united there are still several efficient methods by which we may remedy the defect. Several methods of lengthening tendons have been devised and practised, the best of which, for the condition under consideration, is Czerny's, which consists in splitting one of the pieces of tendon longitudinally nearly to the end, turning down the piece thus secured and suturing it to the other end. The tendon soon regains its original strength. Anderson's method of lengthening tendons is the best to employ where we desire to relieve a contracture of the muscle. A longitudinal incision is made in the center of the tendon of any desired length; then at either end of this incision an incision is made at right angles through the tendon, thus forming two flaps which may be adjusted to any desired length, and firmly sutured. If in a case of severed tendon with loss of tissue we cannot employ Czerny's method, we may connect the divided ends with strands of catgut, thus furnishing a framework for the regeneration of tendon tissues.

A good functional result may also be obtained by transplanting of a tendon, to take the place of the one destroyed. The material for the transplanting may be secured from the patient in some instances where the destruction of tissue has been very large; or if not, an animal tendon may be so utilized, and the usefulness of the part restored. In those cases where only one end of the tendon can be found its function may be restored by suturing it to a neighboring tendon, thus operating two members with one muscle, or combining the power of two muscles in one tendon. The best method to employ in this tendon anastomosis is that of Tillaux and Duplay, and is easily performed by splitting the intact tendon longitudinally, drawing the end of the divided tendon into this opening, and suturing fast. If the tendon has been completely destroyed in the case of the flexors and extensors of the hand or foot, the neighboring tendon with the same function may be split longitudinally in its center, one-half detached from its insertion, and sutured fast

at the point of insertion of the destroyed tendon, thus restoring the motion of the part.

We are often called upon to relieve the unsightly contractures or complete loss of function resulting from an old tendon injury improperly treated. In these cases the exposure of the two ends of the tendon is usually quite difficult, and can only be effected by patient dissection. When found they should be freshened and united by one of the methods described above.

In all operations upon the tendons the procedure should be rendered bloodless, as an unobstructed view is necessary for good work. The best suture for all cases is the continuous stitch, and the best material for the stitch is chromicized catgut.

After all cases of tendon suture the part must be immobilized for at least three weeks, that firm union may be established.

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#### THE ULTIMATE RESULTS OF RADICAL CURE OF HERNIA.

TAILLENS (*Revue Médicale de la Suisse Romande*, July 20, 1897) holds that cure of hernia cannot be considered radical until a period of two years has elapsed since operation, and that even after three, four, or five years there may be recurrence. The cases recorded were those coming to the service of Professor Roux in the years 1890 to 1894 inclusive; in all 401 are noted. Of these only 324 could be followed.

In the statistics which are given all the cases have an operative age greater than two years. The operation in inguinal hernias consisted in freeing the sac a little beyond its neck, ligature, and excision. In 1893, in addition to this procedure the external ring was closed by suture, the needle taking in not only the external oblique and its fascia, but also some fibers of the internal oblique, leaving behind the cord only the transversalis fascia. Sutures were applied in a single layer. From about the middle of 1893 the operation of Bassini was practised, being modified only in that mattress sutures were used in place of the interrupted ones of the originator of the operation.

In crural hernias the sac was dissected and ligated. The external ring was then closed by several sutures, including all the soft parts down to the bone; that is, on one side the crural arch, on the other pectineal fascia and the periosteum.

Umbilical hernias when occurring in chil-

dren were closed by suture without resecting the sac. In the adult laparotomy was performed and regular suture in layers, the sac being first resected.

First, silk was employed, later catgut.

Suppuration occurred frequently, particularly in inguinal hernias.

Of 324 cases of radical cure, 270 were cured and 74 recurred, a percentage of 16.7; of 288 inguinal hernias, the percentage of recurrence was 16.7; of 22 crural hernias, 27.3 per cent.; of 14 umbilical hernias there were no recurrences.

As to the factors which influence recurrence, relaxed abdominal walls and weak muscles, direct course of a hernia through a large opening, thickenings of the cord, and advanced age of the patients, all exerted an unfavorable influence.

Bronchitis, bronchopneumonia and gastro-enteritis are complications which very seriously compromise the success of the operation, both in regard to ultimate cure and mortality.

There were 5.4 per cent. of recurrences in the children operated on under ten years of age; 5 per cent. of those operated on between ten and twenty years; 15 per cent. between twenty and thirty; 35 per cent. between thirty and forty; 31½ per cent. after 40 years.

Bassini's operation was less successful than that of simple suture, giving nearly thirty-six per cent. of recurrences as against a little over twelve per cent. by the last named procedure.

Of the 324 cases, 257 healed by first intention. The percentage of recurrences was 15.2 per cent. in those healing by first intention; 22.4 per cent. in suppurative cases. Suppuration was observed more frequently after Bassini's operation than that of simple suture. Of 288 cases of inguinal hernia operated on, there resulted in twelve instances atrophy of the testicle; in three hydrocele of the cord and testicle; in three varicocele. The atrophy was more frequent after Bassini's operation.

The author concludes with the statement that of the three varieties of abdominal hernia commonly encountered the umbilical is most readily cured. The crural is the one in which failure is most frequent. The likelihood of cure is proportionate to the youth of the patient. Suture of the columns of the external ring gives ultimate results much more favorable than Bassini's operation. Healing by first intention is more likely to result in cure than healing by granulation.

*A NOTE AS TO WHEN INCISION OF THE TYMPANIC MEMBRANE SHOULD BE PERFORMED IN ACUTE INFLAMMATION OF THE MIDDLE EAR.*

Sir WILLIAM DALBY discusses this important subject in the *British Medical Journal* of July 24, 1897. He calls attention to the fact that incision of the membrane when pus is believed to be within the tympanum has for many years been the established practise with surgeons. The real difficulty in these cases is to decide upon the precise period when the incision should be made. We are often unaided by any physical signs in the membrane, and in dealing with an infant we cannot elicit the physical signs within the tympanum as we can in the case of adults; neither can we get the additional help by interrogation as regards sensations which point to fluid within the cavity of the tympanum. When there is added to this difficulty the additional one of the smallness of the parts, the subject is not without its embarrassments. The physical appearances in the membrane are usually of no help in these cases, for they are often absent, and as frequently as not the most that can be seen to be abnormal are the appearances showing a closed Eustachian tube and perhaps some congestion of the vessels.

In the case of infants the constitutional symptoms and the demeanor of the little patient as indicating pain of an acute and agonizing character, or pain prolonged over many days, are the sole evidences within our hands. Taken alone the heightened temperature is an insufficient guide, for in all cases of pain in the ear in children depending on slight inflammation or even congestion of the tympanum, the temperature at once rises considerably.

In the large proportion of cases leeches and hot fomentations will cut short inflammations of the tympanic cavity, but it would be safe to adopt the rule that when they do not a vertical incision should be made in the posterior section of the membrane—a rule subject, of course, to the general aspect of the case.

The operation does no harm, although there may not be any pus to provide an exit for. The justification for the procedure is that there may be pus within the tympanum associated with an absence of physical signs of its presence in infants. In order to estimate properly the exceeding difficulty of offering the same kind of relief in cases of scarlet fever, measles, typhoid, etc., the char-

acter of the various courses which inflammation of the tympanum pursues must be studied closely.

In the infantile forms of this inflammation (not connected with the exanthemata) the process is often slow, subacute, the case dragging on day after day without the membrane giving way. When we consider cases of scarlet fever, measles, etc., we ought always, theoretically, to be able to prevent the ulcerative process by incising the membrane. Practically this is more frequently than not impossible, and for this reason: Perhaps in the evening the ear is not involved, and before morning breaks the inflammation has commenced, and the membranes, or one membrane, is perforated, so rapid is the process; or, again, in the desquamating stage the same rapid ulceration will take place. The damage will be done before the surgeon can be called in. In the case of adults whose tympanic cavities are inflamed, the whole subject is inordinately more simple and relief more feasible. It is easy enough to estimate the presence or absence of secretion within the tympanum, for the passing of air into the tympanic cavity gives the characteristic moist râle (through the otoscope) indicative of secretion. Also when the pressure of fluid has been brought to work changes in the aspect of the membrane, such as a discoloration in a circumscribed spot, or a generally sodden appearance, no further indication is required.

When this sodden appearance is present, and the knife cuts not crisply but as if passing through soaked blotting-paper, the opening thus made is frequently permanent, or at any rate remains for long periods; for the membrane has become so disorganized as to impair its tendency to repair.

#### OPERATIVE TREATMENT OF EXOPHTHALMIC GOITRE.

SCHULZ (*Berliner Klinik*, June, 1897) reports fourteen cases of Basedow's disease under the care of Kümmell, which were treated by partial removal of the enlarged thyroid body. In most of these cases the symptoms of this disease were very severe, and rendered life almost intolerable. Twelve of these patients, it is stated, were completely cured and enabled to resume their occupations. In the two remaining cases the operation was followed by much improvement, and there is every probability of the exophthalmus, the sole persisting symptom of the disease, dis-

appearing in a short time. There could be no doubt that each of these fourteen patients presented well marked and very decided symptoms of Basedow's disease. Frequent observation of the patients after operation during intervals varying in the different cases from two to seven years have convinced the author that objections to partial strumectomy on the ground of probable relapse do not hold good. In one case only was there observed any renewed enlargement of the thyroid. In all the others the remaining portion of the gland showed a tendency to shrink rather than to increase in size.—*British Medical Journal*, July 24, 1897.

#### A CASE OF DRY GANGRENE OF BOTH LOWER EXTREMITIES COMPLICATING ORDINARY SCARLET FEVER; DOUBLE AMPUTATION; RECOVERY.

LITTLEWOOD (*The Lancet*, July 10, 1897) reports an interesting case of gangrene occurring in a boy aged four years, who was admitted to the Leeds City Hospital on September 14, 1896, suffering from scarlet fever. On admission the child presented the ordinary symptoms. On the ninth day numerous small discolorations were noticed extending over both lower limbs from the toes to within two or three inches of the knees anteriorly and posteriorly. The scarlet-fever process followed a favorable course, except that day by day the discoloration of the limbs became more marked, though continuing patchy, lividity being most intense at the toes and feet, and becoming less so from below upward. On the twelfth day the limbs retained a considerable degree of warmth, probably somewhat exaggerated by the more or less continuous application of artificial heat, but in neither limb could pulsation in the femoral arteries be distinctly felt. Pain now appeared, apparently of an intermittent character, and the discoloration had spread to some four inches above the knees anteriorly and to slightly above the center of the popliteal space posteriorly, the distribution being almost exactly similar in both limbs. During the next five days the temperature subsided to the normal. Five days later an oblique line of demarcation had formed, roughly extending in both limbs to three inches above the knees in front and to the center of the popliteal spaces behind. At this time cardiac dilatation was noted, together with a suspicion of roughness of the first sound at the

apex. Amputation was accordingly advised and carried out by a modified circular operation. All the available healthy skin above the gangrenous part was retained, an incision being carried upwards on the outer side for some four inches. The femur was divided at about the junction of the middle and upper thirds. The blood was very thin, coagulating slowly and imperfectly. The femoral artery was patent. Silkworm-gut was used for stitches, and the dressings were cyanide gauze and iodoform. Recovery followed this operation, and a week after amputation through the left thigh was performed, with like anesthetic precautions and incisions. The patient bore this operation much better than the first. The wounds were similarly drained and stitched, and they also healed by first intention. After the second operation the patient made rapid progress and was allowed to be wheeled about in the ward on November 3. When seen later at his home the stumps were found to be well padded. He had free power of flexing, extending, abducting, and adducting the stumps and would shortly be able to wear artificial limbs.

#### RESECTION OF THE LIVER.

AUVRAY recommends applying to the liver around the portion to be removed a series of interlocked ligatures of thick silk. To apply the ligatures he makes use of a blunt pedicle needle with a long curve to it. Each individual ligature, after being crossed with its fellow to the right and left, is slowly and steadily tied with such firmness that the liver parenchyma is cut, but the vessels are retained undivided in the loop. When the whole series of ligatures are tied the vessels are to be severed by the knife or scissors. It is of importance while transfixing the liver to use little force, and when any slight obstacle to the passage of the instrument is encountered, to manipulate the needle from side to side, and so gently guide it past the obstruction. Such obstructions are usually large vessels, and any force used might cause them to be perforated. The points of transfixion ought to be about one centimeter apart. In his experiments Auvray has never met with any difficulty, and has never found that the wound in the liver bled in the slightest degree, either primarily or secondarily.

Auvray's experiments were made on living dogs and on recent human cadavers. Seven dogs were operated upon. Of these two died

from chloroform as the operation was being finished. The rest recovered rapidly and were killed for examination at periods of from two to thirty-one days after the operation. In all the cases which survived the anesthetization adhesions were found between the wound in the liver and neighboring organs. These adhesions were formed rapidly, since in a dog sacrificed forty-eight hours after the operation they existed between the omentum and the anterior surface of the stomach. The wounds in the liver healed rapidly. In an animal which was sacrificed after thirty-one days the portion of liver removed had been regenerated, thus confirming anew the observations of Ponfick and others.

Experiments made on recent human cadavers were equally satisfactory. After the ligatures were applied and the portion of liver supposed to be the seat of tumor was removed, injection of the liver with colored fluid did not show any leak in the wound. To test the firmness and safety of the ligatures traction was made upon them, with the result that the vessels were partially pulled out from the parenchyma behind the ligatures, but these latter did not slip.

Auvray suggests that it might be well in excising portions of the liver to make the wound wedge-shaped so that, hemostasis having been obtained by ligatures, the wound might be made less extensive by means of sutures passed from side to side.—*Annals of Surgery*, August, 1897.

#### COLOPEXY FOR THE RELIEF OF PROLAPSE OF THE RECTUM.

BRYANT (*Annals of Surgery*, August, 1897) thus operated in a case of inveterate prolapse of the rectum, which had not been materially benefited by the formation of an artificial anus.

An incision three inches in length, parallel with Poupart's ligament, was made down to and through the peritoneum. The peritoneum was separated from the superimposed tissues at either side for an inch at least, but farther above than below. The gut was pulled upward firmly, causing the prolapse to disappear entirely; and while the gut was thus held, effort was made to draw down any relaxed tissue of the rectum that might be within reach. The mucous membrane only was relaxed, but not to a sufficient degree to permit its appearance at the anal opening. During firm traction upward on

the gut the peritoneal flaps of the wound were joined to it by quilting and continuous sewing with silk, the stitches including the muscular coat of the intestine. Six silk sutures were then carried through the borders of the abdominal wound, and so as to include the muscular coat of the gut, behind the longitudinal band. The longitudinal band was then drawn forward into the wound almost to the external limit, and the sutures tied firmly, thus causing the border of the wound to grasp firmly the entire band and some portion of the intestinal wall. The wound healed promptly without untoward manifestation. The patient was kept in bed for three weeks, since which he has been allowed entire freedom of action in all respects. No protrusion has been seen after defecation or with the severest strain since the operation.

As a result of the operation the patient was apparently cured, but later developed a hernia at the seat of incision. Bryant has collected twenty-nine cases of this operation with seven recurrences. There were no deaths. He offers the following conclusions for consideration:

That the results in the experience of others with colopexy, and the present outcome of this case, bespeak a continued effort in this direction, with a well founded belief in the attainment of beneficent results in proper cases.

That the brief duration of many of the cases at the time of report and the varying methods of fixation of the bowel to the abdominal wall bespeak further experience in these matters before positive conclusions are expressed.

That fixation of the bowel by sewing it to the deep tissues of the abdominal wall at a point independent of, yet conveniently near to, the incision offers a satisfactory method of anterior fixation.

#### TENOPLASTIC SURGERY.

BRADFORD (*Annals of Surgery*, August, 1897) by the above title implies not only suture of traumatically divided tendons, but the securing of the distal cut end of the tendon of a paralyzed muscle to the proximal end of the tendon from a strong one. This form of transplantation was suggested first by Nicoladoni in a case of infantile palsy of the ordinary type. It is necessary not only to correct the deformity but to restore the balance of the muscles to prevent a recur-

rence of the deformity—for instance, transplantation of the peroneus longus into the tendo Achillis, into the tibialis posticus, and into the anticus; the union of the tibialis anticus with the extensor proprius pollicis; shortening of the extensor tendons of the toes; shortening of the tendo Achillis; lengthening of the tendo Achillis; and insertion of the sartorius muscles into the rectus femoris tendon. When the tibial group of muscles is weakened the tendon of the peroneus longus may be transplanted; the sheath of this tendon is opened slightly above the level of the malleolus, the tendon pulled out and cut across, and at least two inches of its proximal end freed. This end is passed beneath the tendo Achillis and secured by suture to the distal end of the divided posterior tibial tendon. The method of suturing the tendon is of importance, since the tendinous structures may be supposed not to unite as readily as other tissues, as their vascularity is less and the strain to which they are subjected is great.

Following the operation supports should be used which will constrict as little as possible. The foot or limb should be placed in such a position as to relieve the muscles and tendons operated upon from any strain. Besides the ordinary aseptic dressings, the limb should be covered with sterilized sheet wadding, and the foot and limb held in plaster-of-Paris bandage. It should remain in this until union is expected. The immediate result is always successful so far as recovery from the operation is concerned. Where ordinary judgment is used, and healthy tendons are sewn to paralyzed ones in a proper manner, there is always a recovery of motion in the paralyzed tendons attached to an active muscle as soon as the wound is healed. This recovery may be regarded as permanent. The actual benefit should depend on the strength of the muscle utilized as well as the part operated on.

The author announces that he and his colleagues have performed transplantation in twenty-seven cases of infantile paralysis, chiefly those requiring transplantation of peritoneal tendons. In two cases little benefit followed; in the remainder there was a gain of the hitherto restricted motion, this gain being increased under use.

Tenotomy and myotenotomy with resulting tendon lengthening have been performed in nineteen cases of spastic paraplegia and hemiplegia with, in most instances, satisfactory results.



*A SIMPLE PROCEDURE 'BY WHICH AN EASILY MANAGEABLE ARTIFICIAL ANUS CAN BE MADE AFTER COLOTOMY.*

BEYER (*Prag. Med. Woch.*, No. 8, 1897) so plans his incision through the belly walls that the cut through the peritoneum lies parallel to the skin incision but one and a half inches upward and inward from it; thus the opening is oblique. The sigmoid flexure is drawn out and secured to the parietal peritoneum, then to the borders of the abdominal muscles, after which the greater portion of the skin wound is closed. The remaining portion of the gut is then drawn forward, opened, cleansed, and secured to the skin edges.

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## Reviews.

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THE POCKET THERAPIST. A Concise Manual of Modern Treatment, for Students and Junior Practitioners. By Thomas Stretch Dowse, M.D.  
Bristol, England: John Wright & Co., 1897.

The author states that he has put forth this manual with the belief that it may be useful to the student and young practitioner in the exercise of his calling. His suggestions as to the treatment of disease are, he states, based on experience. He has referred only to remedies which he has found useful, and left unnoticed those which he has found useless. The book is arranged in alphabetical form, so that the diagnosis having once been made the practitioner by using this book as he would a dictionary is enabled at once to select appropriate treatment. Thus, if the physician is consulted by a person suffering from baldness, by turning to this word, which is done in an instant, since the book is small, he discovers that washing with borax and water night and morning, followed by a lotion containing jaborandi, cologne, oil of almond, oil of rosemary, and some other ingredients, is the appropriate treatment. Appendicitis is relieved by hot fomentations and small doses of extract of opium and absolute rest, purgatives being avoided. Proctitis is treated by injections of opium followed by lumps of ice in the rectum and injections of lead and opium. Keloid calls for hypodermic injections of thiosinamine.

On glancing through the book, the reader is impressed with the large number of drugs mentioned, some of them strange to American ears; thus branelcane, vibrona and sanmetto are commended. We believe the author would have done better to have limited the work strictly to the line of therapeu-

tics and to have given the results of his own experience. In even the small space of this handbook there are many quotations from others in regard to remedies, the curative effects of which have been quite disproven.

ATLAS AND ESSENTIALS OF BACTERIOLOGY. By Prof. K. B. Lehmann and Dr. Rudolf Neumann. Illustrated.

New York: William Wood & Co., 1897.

The greater part of this handbook is made up of some sixty-three plates printed in different colors, most of them containing several figures illustrating the growth and microscopical appearance of the various pathogenic bacteria. The descriptive matter for each plate is printed on the page facing it. This portion of the work is followed by 130 pages of text devoted to the morphology of bacteria, their clinical composition, vital conditions, formation and germination of spores; the effects of bacteria, especially in regard to their employment for diagnostic purposes; the chemical action of bacteria metabolism; the pathogenic effects of bacteria; and an appendix, including microscopical examination, the most important solutions for making preparations, the preparation of stained specimens, section preparations, culture of bacteria.

It is evident that this book is likely to be extremely useful, especially to those practitioners of medicine who have received such elementary instruction in bacteriology as is now a part of the curriculum of every school.

Lehmann and Neumann are both so well known in the scientific world that their names are sufficient guarantee as to the fidelity of the illustrations. They have been more than usually successful in clearly presenting the essentials of the subject in brief space.

THE AMERICAN ACADEMY OF RAILWAY SURGEONS. Report of the Third Annual Meeting, held at Chicago, September 23, 24, and 25, 1896. Edited by R. Harvey Reed, M.D.

Chicago: American Medical Association Press, 1897.

This work, a copy of the proceedings of the third annual meeting of the American Academy of Railway Surgeons, contains some important original papers and the discussions which they called forth. Among the communications of special interest are: First Aid in Railway Emergencies, by James E. Pilcher; Medical and Surgical Expert Testimony, by John E. Owens; Medico-Legal Aspect of Floating Kidney, by R. Harvey Reed; Delirium of Shock, by R. Sayre Harnden; Burns and Scalds, by C. K. Cole; Perforating Wounds of the Eyeball, by D. C. Bryant; Penetrating

**Wounds of the Eye: Their Diagnosis, Prognosis and Treatment, with Especial Reference to Railway Employees,** by Archibald G. Thomson. Dr. R. Harvey Reed is to be especially commended for his admirable editorial work in the compilation of this useful volume.

**TUBERCULOSIS OF THE GENITO-URINARY ORGANS, MALE AND FEMALE.** By N. Senn, M.D., Ph.D. Illustrated.

Philadelphia: W. B. Saunders, 1897.

As in all of Senn's work, this book shows wide clinical experience and extensive knowledge of the literature of the subject. The first part of his work is devoted to Tuberculosis of the Male Genital Organs. Some interesting cases are quoted, but the teaching is not different from that laid down in the ordinary text-book.

In recent cases of tuberculous epididymitis parenchymatous injections of iodoform and glycerin emulsion or of chloride of zinc should be used. If this treatment does not prove satisfactory after a fair trial, castration should be performed before the disease extends to additional organs; in limited abscess formation the use of a sharp spoon and an iodoform gauze tampon may prove efficient, but if the disease resists these measures castration is strongly indicated. If the disease is bilateral, palliative treatment should take the place of radical operation in the majority of cases. Castration is absolutely contraindicated when the tubercular affection of the testicle is complicated by tuberculosis of any important internal organ. Simultaneous tuberculosis of the prostate and the seminal vesicles does not necessarily contraindicate castration.

In the treatment of tuberculosis of the female organs of generation, minute attention is paid to improving the general health. Guaiacol and creosote are especially commended, the former drug appearing to render harmless the toxins of the bacilli; it is given in doses of five drops in milk three times a day. Locally the abscesses are tapped under antiseptic precautions, and washed out with a five-per-cent. boracic acid solution; after this two to four drachms of a ten-per-cent. iodoform-glycerin emulsion should be injected. Theseappings should be repeated every week or two. Tubercular ulcers of the vulva and the vaginal portion of the cervix uteri should be curetted and thoroughly rubbed with iodoform. Tuberculosis of the vulva, vagina, uterus, and Fallopian tubes and ovaries is taken up in turn.

Finally, infection of the bladder and kidneys is considered. A detailed and very clear description of the operative technique required by nephrectomy closes this work.

No doubt the name of the author will assure this book a cordial reception on the part of the profession; even were it written by one quite unknown in surgical literature its great value would be immediately recognized.

**A PICTORIAL ATLAS OF SKIN DISEASES AND SYPHILITIC AFFECTIONS.** In Photo-lithochromes from Models in the Museum of the Saint Louis Hospital, Paris. With Explanatory Woodcuts and Text. By Ernest Besnier, A. Fournier, Tenneson, Hallopeau, Du Castel, Henri Feulard, and L. Jacquet. Edited and annotated by J. J. Pringle, M.B., F.R.C.P. Part X.

Philadelphia: W. B. Saunders, 1897.

This number contains photo-lithochromes of Polymorphous Syphilides, with Predominance of Lichenoid and Miliary Forms; Paget's Disease; Trophic Ulcers of the Hand and Forearm; Syphilitic Chancre of the Face; Syphilitic Chancre of the Breast (Common Form); Syphilitic Chancre of the Breast (Ulcerative Form). Of these plates those representing miliary syphilis and extragenital chancres are unusually fine.

If the remaining parts of this admirable work are as perfectly executed as those which have already been issued, this Atlas will be the most serviceable and reliable one which the practitioner of medicine can procure.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

Of matters medical in the current month there is but little to chronicle. London is deserted by its medical men, many of whom have made their way over sea to Montreal. Hospitals are dismantled, libraries closed, and the medical societies are enjoying a prolonged rest from their labors. The medical journals have caught the spirit of the season, and supply no more solid pabulum than the time-honored grievances of the profession against the world in general, along with the internecine struggles of the medical brotherhood. Prominent spaces are devoted to presentations of silver-headed canes to medical men by the grateful members of ambulance classes, and other matters of medico-social or medico-ethical interest. Among the latter

we note constant allusions to the existing state of depletion of the Army Medical Service. The medical profession thrives on martyrdom, and we hesitate to lighten the burden of its voluntary cross. In medical circles some sort of boycott of the Army Medical Service has been established just at a time when the struggle for a livelihood is keenest among the younger members of the profession. We submit that such an attitude is extremely ill-advised. The grievance is that medical men are not accepted on terms of equality by their brother officers. The fact is substantially true, but we must look behind the fact. Have we given the best of our material to the services? We think not. It is notorious that a medical man of education and social refinement meets a warm welcome among his brother officers, and we should hesitate to coerce their friendship to those of a less delicate social fiber. On the other hand there is no disposing of the undisguised and supercilious disregard with which certain department chiefs have sought to degrade the medical service in the eyes of the army and of the public. It would seem that as usual the fault and its remedy lie betwixt and between, and the more readily we set ourselves to mend our own shortcomings, the more easily shall we coerce the recognition of the War Office. But without any attempt to apportion duly the blame, we do not hesitate to protest against the introduction of the policy of settlement by strike into the medical profession. The commercial aspect of our calling is necessarily always near the surface, and it is ill to multiply its trade associations.

It is a matter of general regret that the leader of the House of Commons has been driven into sacrificing the London University Commission Bill. The question must now stand over for settlement to another year, and London must remain the only great city of the world without a university worthy the name. Seeing that some general broad line of settlement had been arrived at, it was hoped that a bill in which the interests of so many and important educational bodies were bound up might have successfully encountered the inevitable obstacles of individual opposition. It is true that the settlement, though not actively obnoxious to any one, was equally devoid of any special attractiveness for any one; but where so many opposing interests have to be satisfied it is clear that the latter condition can be more easily attained than the former. We gather, too, that

the bill has been withdrawn not with a view to amendment or alteration, but because it was necessary to sacrifice some innocent to the exigencies of the parliamentary timetable. The supreme body in the new university would be the Senate of fifty-six members, of whom about one-fifth would definitely represent medical interests. Students are divided into two classes—internal and external. Internal students are those who have matriculated at the university, and who are pursuing a course of study approved by the university in a school of the university, or under recognized teachers of the university. The interests of internal students are to be guarded by an Academic Council of twenty, who shall act as an advisory body to the Senate, while those of external students are to be entrusted to a Council for External Students consisting of twenty-eight members. Thus absolute control is vested in the Senate, acting under the guidance of two large sub-committees of its own members.

In the King's College Hospital reports, which have just been issued, Mr. Burghard has an instructive paper on the Treatment of Hydroceles in Children. He puts no faith in the methods of treatment by the application of evaporating lotions, or in puncture of the hydrocele by the triangular needle, so as to let out the fluid from the tunica vaginalis into the tissue of the dartos from which it is absorbed. The method he has adopted, and with marked success, is the injection of pure carbolic acid into the tunica vaginalis; this procedure is a modification of the method introduced by Dr. Levis, of Philadelphia, in 1881. The technique of the injection is as follows: An ordinary hypodermic syringe is filled with liquefied carbolic acid, made by liquefying the ordinary crystals of the acid by means of heat, and adding five per cent. of glycerin in order to prevent the carbolic acid crystallizing either in the syringe or in the needle as it is being injected. The hypodermic needle, duly sterilized, is then introduced into the tunica vaginalis through the skin, and the contents of the hydrocele drawn off. The needle should be rather larger than that usually employed for hypodermic injections. When the fluid has escaped the syringe is fitted to the needle, and a quantity of carbolic acid varying from five to eight minims, according to the size of the hydrocele and the age of the patient, is injected into the sac. It is important that during the injection the point of the needle should not be allowed to escape

from the tunica vaginalis, or the acid will find its way into the surrounding tissue and may be absorbed, or even lead to local sloughing. After the acid has been injected the needle is removed, and the walls of the tunica vaginalis are gently rubbed together so as to bring the acid into contact with every portion of the wall. The operation is very much less painful than when tincture of iodine is used, and after the preliminary puncture the child will often not cry at all. No dressing need be applied. After a few hours a more or less solid swelling replaces the hydrocele, and with it there may be some redness of the skin, but the constitutional disturbance is trifling. This swelling usually begins to subside about the third or fourth day, and disappears about the seventh or the tenth day; a swelling of longer persistence usually indicates a recurrence of the hydrocele. In none of the cases thus treated was there any symptom of carbolic poisoning, nor any tendency to sloughing of the scrotum. This is rather remarkable, seeing that children are very susceptible to absorption of the drug when used in watery solutions, even by the unbroken skin. On the other hand, the pure liquefied acid may be applied to extensive areas without inducing any toxic symptoms. Before adopting this treatment, and especially if the hydrocele seems to be secondary to some affection of the testis or to an inflammatory condition of the scrotum, it is always well to see whether the hydrocele may be cured by treating its cause.

Mr. George Cheatle records some good results in the treatment of gonorrhea by a novel but simple method. He eschews all medicines and injections. The penis is well washed twice a day in a 1-in-60 solution of carbolic acid, and kept wrapped in cyanide gauze, wrung out of the same solution. The discharge is thus received into an antiseptic dressing so that it does not inoculate other mucous surfaces, and does not become secondarily infected with ordinary pyogenic micro-organisms. The penis and its dressings are inserted into a carbolized mackintosh bag attached to the suspender with which the testicles are supported even in the absence of any epididymitis. The patient is strictly instructed to soak his hands in the carbolic solution before touching his dressings for any purpose whatever. With cases so treated from the first the disease usually runs its complete course in fourteen days; in cases of longer standing the ultimate results are just as good, but require a longer appli-

cation, while gleet in addition generally requires local treatment with the aid of the urethroscope. Mr. Cheatle claims for this method that it minimizes the septic complications, such as abscesses in the groin, and otherwise favorably determines the course of the disease.

Mr. Watson Cheyne records an interesting case of simultaneous wiring of both patellæ for fracture. The fracture of the right patella was transverse, and due, as is usual, to the sudden contraction of the quadriceps muscle snapping it across the condyles of the femur; there was a similar transverse fracture of the left patella, similarly produced, and in addition a vertical fracture due to direct contact with the ground. Three days after the accident both patellæ were wired in the usual manner, the upper and lower fragments on the right side being united by a single thick wire; on the left the two halves of the lower fragment were first bound together transversely, and then wires were passed from each half to the upper fragment, so that in all four wires were used. The wounds were stitched up without any drainage, and no splint was used as the patient was encouraged to move his leg freely in bed after the operation. He was discharged from the hospital after four weeks able to walk quite well, and a month subsequently was able to walk or run as usual; in fact the knees were as perfect as before the operation. The wires could still be felt under the skin, but had given rise to no trouble whatever.

On the treatment of flatfoot Mr. Carlars speaks as one having authority. Every one must have been impressed with the futility of the methods commonly in use to meet the requirements of the severer cases. True, there are not a few cases in which the yielding of the arch is but part and parcel of a condition of general enfeeblement, and such may be relieved by measures directed to the improvement of the general health. Other cases require nothing further than a simple mechanical support of rubber, cork, or spring metal. But there remains a variety of cases which can only be relieved by active operative interference. Mr. Carlars has discarded such measures as pegging the astragalo-scapoid joint, or removal of a wedge-shaped portion of bone from the neck of the astragalus, for a method suggested by Willett, of St. Bartholomew's Hospital, from which he has had excellent results in several cases. He describes his procedure as follows: The patient is anesthetized and the

foot is grasped from the inner side in such a way that the two thumbs rest on the inner aspect of the head of the astragalus, while the rest of the hands pass respectively over the anterior and posterior segments of the foot. The part is then forcibly wrenched into a position of extreme adduction around the head of the astragalus, which is fixed by the two thumbs as a pivot. In this way the anterior segment of the foot is deflected from the direction it has acquired by drawing the scaphoid, as it were, over the head of the astragalus. The foot is then fixed in its new position by a wrapping of plaster of Paris for several weeks, and at the end of this period the patient can usually walk about freely. Mr. Carlers maintains that the pain which subjects of flatfoot often complain of on the inner aspect of the arch is due to tenosynovitis of the tibialis posticus tendon. This is sometimes evidenced by the presence of a diffuse tender swelling along the course of the tendon, in which fluctuation may be detected above and below the annular ligament. For this condition he recommends either rest and blistering or the more radical treatment of laying open the sheath, washing it out and draining, and if desired, in connection with the wrenching process.

At the end of last month the Royal College of Physicians made a notable contribution to the Jubilee celebrations by the admission of the Prince of Wales to an Honorary Fellowship of the college. The ceremony was performed at Marlborough House, and not as usual within the walls of the college. After the ceremony of admission by Sir Samuel Wilkes, as President, the Prince was presented with a diploma on vellum, illuminated with the college arms, and wrapped in a case of red morocco. An additional and more useful presentation was that of a gold-headed cane, of the pattern formerly carried by every physician of learning and position, with a vinaigrette in the head to ward off the perils of infection. The text of the diploma is couched in language which while failing to carry our thoughts reflexly back to the glories of Augustan Latin literature, at any rate suggests an easy transition from the existing diversity of tongues to a universal language, and is as follows:

*Sciatis omnes nos:* Samuelem Wilks, Baronetum, Medicinæ Doctorem et Præsidentem Collegii Regalis Medicorum Londinensis, una cum consensu Sociorum ejusdem Collegii, auctoritate nobis a Domine Rege et Parlamento concessa, in Societatem nostras, honoris causa, cooptasse virum illustrissimum Albertum Edwardum, Walliæ Principem, Corombiæ Ducem, Nobilis-

simi Ordinis Periscelidis Equidem. In cujus rei fidem et testimonium Sigillum nostrum commune præsentibus apponi fecimus. Datum Londini in Collegio nostro die vicesimo nono mensis Julii, annoque Domini millesimo octingentesimo nonagesimo septimo.

### PARIS LETTER.

BY A. R. TURNER, M.D. (PARIS).

Most American physicians who have visited Paris have not failed to pay a visit to the Clinic of Dr. Luys, at the Charité Hospital. This clinic, which was frequented not only by medical students and physicians but also by many persons not belonging to the medical world, including reporters, was the scene of some of the most curious phenomena of hypnotism, to which Dr. Luys had especially devoted himself. A favorite exhibition was the effect produced by solutions of drugs in bottles brought into the neighborhood of patients in the hypnotic condition. As the patients shown by Dr. Luys were more or less the same, and by constant repetition had become educated in the various manifestations which were expected of them, it was natural that accusations of imposture should be made. It may be said, however, that all who were acquainted with Dr. Luys considered him to be perfectly honest in his opinions, and at the worst mislead by too great a belief in the honesty of his patients.

Dr. Luys, who retired not long ago from the post of hospital physician, but who still occupied himself with practise, died suddenly during the holidays, while at a watering-place.

In 1888 and 1889 Dr. Luys published two works on his favorite subject—"Emotions chez les Hypnotiques" and "Leçons Cliniques sur les Principaux Phénomènes de l'Hypnotisme."

It is well known that one of the most difficult conditions to treat is that of chronic constipation. The objection to massage of the abdomen and electricity is that they are expensive and require much more time than many patients can give to them. Drugs are usually too powerful, and once their action is exhausted are apt to leave the patient more constipated than before. A physician residing in Paris, Dr. Vladimir de Holstein, claims that a satisfactory result may be obtained by administering creosote. This drug should be given pure, and not, as usually is done, in alcoholic solutions or in pills. Seven or eight drops should be given twice daily, after a meal, in a glass of water or any other liquid. If the dose is found not to act it should be

increased. Inasmuch as the patient may complain at first of the burning caused by the creosote, it is often well to begin by a smaller dose, say one drop daily, increasing daily one drop, until the desired result is obtained. Not only is constipation done away with, but the appetite increases, and the general condition is improved.

This treatment should be continued for several months. Dr. Vladimir de Holstein thinks that creosote does not act as a purgative, but neutralizes some intestinal toxin which causes paresis of the intestinal tube.

In a previous letter I gave an account of the favorable results obtained in China by Dr. Yersin in the treatment of the plague by means of subcutaneous injections of serum. During 1897 the results were not so good. In a communication made to the International Medical Congress at Moscow Dr. Metchnikoff gave some statistics concerning the effects obtained in India at the hospital of Cutch Mandvi. The mortality among 685 patients not treated with serum amounted to 549, or eighty per cent., whereas the mortality among 141 cases treated in Bombay and Cutch Mandvi by means of serum amounted to forty-nine per cent. only. Among 500 persons living in contact with plague-patients and treated with preventive injections, but five cases of plague occurred, of which two were fatal.

The cause of the comparative non-efficacy of the serum during 1897 must be attributed to the weakness of the serum, the horses having been only recently immunized. Most of the serum was preventive in mice only in doses of one-tenth of a cubic centimeter; while some of the serum was so weak that the preventive dose for a mouse was one-fourth and even one-half cubic centimeter.

According to Dr. Roux serum prepared by the intravenous injection of agar cultures is more powerful than serum prepared by means of dead bacilli.

#### *DOSE OF BICHLORIDE OF MERCURY HYPODERMICALLY IN SYPHILIS.*

To the Editors of the THERAPEUTIC GAZETTE.

GENTLEMEN: In the issue of the GAZETTE dated August 16, 1897, there is an article entitled "Sixteen Years' Experience in the Treatment of Syphilis by the Hypodermic Injection of Bichloride of Mercury," which is taken from the *New Orleans Medical and Surgical Journal* for April, 1897.

Throughout the entire article no mention

is made of the strength or preparation of the solution nor of the dose administered at one injection. I am much interested in this method of treatment for that dread disease, and would highly appreciate any information you may be able to give me and the profession in general on these points, which I consider are of vital importance.

I notice that only the closing remarks of Dabney's paper are given, and any information on the solution and dose is purposely omitted. If you can and will furnish me with the requested information, I shall be greatly pleased and under many obligations. Would like to see it in the next issue as well as to hear from you personally on the subject before that time, as I am anxious to give it a trial.

In closing I will say that I have but recently subscribed for the GAZETTE, as well as *Medicine* and *The Medical Age*, also published by William M. Warren, of Detroit, Mich., and am greatly pleased with all of them. The GAZETTE is particularly interesting, inasmuch as it contains so many short and "to the point" articles.

I shall hereafter try never to be without it.

Very cordially yours,

FREDERIC D. LEE, M.D.

428 ELEVENTH AVENUE, MILWAUKEE, WIS.

August 23, 1897.

[Dabney's article is an extremely able plea for the treatment of syphilis hypodermically. He reports seven successful cases. The solution employed was one of bichloride, one grain to the drachm. In the first case fifteen minims of this solution was injected just under the skin below the deltoid of the left arm. The dose was increased up to twenty-one minims. This patient received in all ten injections and was discharged. The strength of solution employed in subsequent cases was the same.

The second case, a boy, received ten injections, beginning with six minims, increasing to eleven minims.

The third case refused treatment because of the pain.

The fourth case was treated hypodermically for several months.

The fifth and sixth cases received ten injections of twenty minims each.

The seventh case, one in which the dermal manifestations were unduly severe, was treated by four daily injections of twenty-five minims, after that thirty minims every three days until ten injections had been given.

—ED.]

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## Original Communications.

### *THERMOTHERAPEIA, OR THE HOT-AIR TREATMENT, AND ITS USES AND POSSIBILITIES.*

BY ELLWOOD R. KIRBY, M.D.,  
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AND

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Visiting Chief to the Surgical Out-patient Department St. Agnes Hospital.

The effects of heat upon the human body are, of course, for the most part the opposite of cold. By surrounding the body with a

temperature higher than its own the destruction of the tissues by oxidation is considerably diminished; and many curious facts have been discovered, but with few exceptions these facts still remain to be explained.

For the first knowledge of thermotherapeia the medical profession is indebted to Mr. Urquhart. He found that the treatment was adopted in various parts of the world, and that its use was almost universal in cold and temperate climates, but absent in the tropics. By the people among whom it was found the application of hot air was employed as a luxury and a religion—the religion of physical purity—but not as a remedy against disease. It was left for Urquhart to apply

highly heated air as an agent for the relief of pain and disease, with the most signal benefit.

The capacity of the human body for bearing dry air at a very high temperature is a matter of common observation; we see it in the daily occupation of copper smelters, puddlers, and stokers. In well ventilated rooms a temperature of from  $170^{\circ}$  to  $200^{\circ}$  is not only bearable but absolutely soothing and agreeable.

The essence of the quality of a high temperature is its dryness, and when absolutely dry a temperature of  $400^{\circ}$  has been borne for several minutes. If the air be moist, a temperature of  $130^{\circ}$  or  $140^{\circ}$  will begin to scald. The great value of dry heat we can clearly see by the universal use of the Turkish or Russian baths; but the application of high degrees of dry heat to the entire human body is dangerous at times.

It has been only within the past two years that any attempt has been made in the use of a definite apparatus, by which a high degree of dry heat at a known temperature can be applied to a part of the human body without the dangers of serious or accidental results from the disorganization of tissues. It is a well known fact that heat applied to the human body will relieve pain and also abort many simple inflammatory conditions, but just how this is brought about is rather difficult to explain. It has been determined experimentally that a temperature of  $140^{\circ}$  F. applied to a motor nerve will produce motion in parts supplied from direct irritation, and that a temperature of  $212^{\circ}$  F. is capable of producing the most violent tetanic contractions, which are entirely due to the disorganization of the nerve tissue.

The apparatus used in the following experiments is one constructed by Lentz & Son, of Philadelphia, and is a most admirable one for its simplicity of construction and its price. The actual space required for the machine is  $3 \times 2\frac{1}{2}$  feet, and with chair for the patient the total space is  $5 \times 2\frac{1}{2}$  feet. Two gas-jets are used for ordinary pressure; these will bring up the required temperature of  $300^{\circ}$  to  $400^{\circ}$  F. in from forty-five minutes to one hour. The actual cost of running the apparatus is about two cents per hour. It is entirely portable, its total weight being under forty pounds.

*Technique of Application.*—The temperature of the machine is allowed to reach  $200^{\circ}$  F.; the patient's limb is then carefully but loosely surrounded by a large blanket, special care

being taken to allow a considerable air space between the blanket and toes or fingers, and also that the limb just within the iron rim of the machine be thoroughly protected to prevent burning from the heated metal. The canvas hood is now made tight about the limb. For experimental purposes the pulse, respiration, and temperature were taken before and after applying the heat, and in all joint conditions the circumference of the same was taken before and after. The average treatment should last from forty-five minutes to one hour, and the temperature should be slowly increased until the full limit of the patient, so far as his sensations are concerned, is reached.

The guide in the matter is the sensation of the patient, who at first usually experiences pain in the toes and fingers, but this is not excessive; and when the temperature becomes intolerable to these parts, as noticed by the very sharp, stinging pain, the temperature is quickly reduced  $10^{\circ}$  or  $15^{\circ}$  by opening the valves at the top of the machine or opening the machine door, or a procedure which we are commonly in the habit of adopting, of opening the door of the apparatus and quickly throwing an ordinary towel into the cylinder. This will absorb a certain amount of heat, thus relieving the distressing pain. After this the temperature is gradually allowed to rise again, until the limit of tolerance is reached, and then lowered. Some surgeons have recommended covering the limb with a piece of lint, or with absorbent cotton, and a bandage. This substance is entirely too thin, and does not absorb the perspiration quickly enough, or may be quickly saturated with moisture; hence in quite a few cases very severe scalds have resulted. When the blanket is used, however, no such injury is possible, if the ordinary amount of care be exercised. Another point in favor of the use of a blanket to encase the limb, rather than lint or gauze, is that the limb is thoroughly protected from the canvas covering of the magnesium; for, although the heat cannot go through the magnesium, it is forced directly through the flues of the apparatus in such a manner that the canvas becomes as hot as the surrounding metal and asbestos, and hence might readily scald.

The thermometer should not be pushed down as far as the limit of the metal guard, as this is continuous with the iron of the apparatus; the instrument will register proportionally higher than the true interior tem-



perature actually is. With a temperature of  $380^{\circ}$  as registered by the thermometer the temperature in the exact center of the cylinder will register but  $350^{\circ}$  to  $360^{\circ}$ , while beneath the first fold of the blanket about  $335^{\circ}$  to  $340^{\circ}$ , and directly next the skin but  $230^{\circ}$  to  $250^{\circ}$ ; so we can therefore notice that quite a difference exists between the temperature as registered by the thermometer of the apparatus and the actual heat in direct contact with the skin.

Immediately after the application the limb or part exposed to heat is washed with alcohol and quickly dried, and the patient allowed to follow his usual avocation. The treatment should be applied daily in acute cases; in chronic cases at longer intervals.

After applications the limb or part is extremely red and hyperemic, bathed copiously with perspiration, skin soft and pliable, and pain, if present before, entirely relieved or much improved. In the lower extremities patients often complain of a peculiar numbness of the limb, a fact which is entirely due to the position in sitting; the limb is markedly extended, and simple extension of the sciatic nerve will produce this condition either in or out of the machine, and has nothing to do with the action of heat upon nervous tissues. Often the circumference of the limb was considerably reduced; at times it was unchanged, a condition which no doubt depends upon the presence of subcutaneous edema or effusion. The explanation as to the relief of pain is rather difficult. Ringer has shown that heat impedes or destroys the electrical currents of nerves, whence it may be fairly presumed that when subjected to this influence they are less able to conduct impressions to or from the brain. The action of the heat in such cases is a temporary one. If the case was allowed to rest with one application the patient might be entirely free from pain for several hours, and when it did return the pain would not be quite so severe as before the treatment. If the treatments are continued for any length of time there is a progressive loss of flesh and strength, amounting in one of our cases to seventeen pounds for thirty heatings. This case was one of double hydrops articuli of the knee, the patient refusing operation. He was led to try the hot air by way of an experiment. The result in this case will be given under the list of cases.

The greatest temperature applied at one time was  $400^{\circ}$ , and the lowest  $270^{\circ}$ , the average treatment being about  $320^{\circ}$ .

A short time after the applications have been made we find that there is an elevation of the central temperature, the highest in our list of cases being  $100.1^{\circ}$  and the lowest  $98.7^{\circ}$ . The average increase of temperature was  $1.2^{\circ}$  F. The pulse is at the same time somewhat increased in frequency, the greatest being 120 and the lowest 92, showing an average increase in the pulse-rate of thirty-three beats per minute.

When very high degrees of heat are applied to the human body there is at first a violent vasomotor contraction and an increase of blood-pressure, but when a temperature of  $380^{\circ}$  F. of dry heat is applied there is a vasomotor dilatation, as borne out by the increased action of the sweat glands, the increase of temperature, which is almost always associated with dilatation of the capillaries, and finally by the flushed appearance of the skin. The tracing shown was taken ten minutes after the application of a temperature of  $380^{\circ}$  F. dry heat to a dog, the animal being fully anesthetized.

Sonnenburg says the temperature rapidly rises shortly after the application of heat, and considers this rise of temperature consecutive to the overheating of the blood. It is incontestible that when the cutaneous surface of man or beast is subjected in totality or in a greater part to the action of an intense heat, the entire blood distributed to the periphery not only becomes hotter, but is considerably altered, and the overheated blood which flows back to the central structures must of necessity be followed by an elevation of the central temperature; but there is in animals a considerable difference, which can be easily appreciated when one takes into consideration the size of the subject. We have frequently observed that in those cases in which the superficial fat was well developed there was less immediate relief experienced from pain; and the elevation of the central temperature is less demonstrable than in those subjects whose muscular and fatty layers are particularly thin.

Sonnenburg states that if a burning substance be brought in contact with the cutaneous surface there is primarily an attempt at self-defense on the part of the organism by an immediate vasoconstriction which prevents the blood from flowing through the burned area, and thereby causing internal congestions. In our series of cases we have noticed on the contrary a vasomotor dilatation with its consequent hyperemia and fall of blood-pressure, the rapidity of which de-

depends upon the intensity of, and the duration of the application of, the heat, results which are clearly due to a paralytic exhaustion of the vascular tonicity. The red blood-corpuscles can scarcely pass through the vessel, while on the contrary the venous dilatation is so great that they occupy one-third more space than in their normal state. Milne-Edwards in his work on comparative anatomy has also studied this phenomena: the action of cold produces a contraction of the arterioles and intense heat produces the same effect, while a moderate heat dilates the vessels. Salvioli confirmed these results by actually measuring the diameter of the vessels before and after the application of heat.

We have noticed from a series of microscopical examinations made of the blood by Dr. Geo. A. Muehlick an excess of accumulation of red blood-corpuscles resulting from the action of the high temperature.

During the past nine months we have treated something over 300 cases at St. Agnes Hospital, with a grand total of 910 heatings for all cases, including 157 cases of recent sprains, eight of the shoulder-joint, seven of the elbow, twenty-two of the wrist, eighteen of the knee, fifty-five of the ankle, twenty-four of the thumb, and twenty-three of the fingers, with most excellent results.

In cases of traumatism of the shoulder it was impossible to get the full effects of the heat because of the difficulty experienced in getting the shoulder within the cylinder of

the apparatus; in general, however, applications to the upper extremity are followed by good results. Each case was treated for from forty minutes to one hour, with a general average of five heatings. In none of these cases was any retentive dressing applied, with the exception of the ankle; in all other joints the full limit of heat was applied for forty-five minutes for small joints, as the fingers and thumbs, and one hour for the larger joints. Our best results were obtained in sprained ankles, all of these cases being heated for a full hour, at a temperature ranging from 300° to 380° F. After each application of heat a Coterell dressing was applied, and the patient told to use the joint as much as possible. The majority of the cases were treated daily; some every third day. Usually one application gave perfect ease from pain; in some cases two applications were necessary before the pain was entirely relieved; and in the great majority of cases three applications were necessary to restore perfect function of the joint. In some of our cases the rapidity of cure seemed marvelous.

We have noticed that in subjects with an excessive amount of subcutaneous fat the first application seemed to be followed by an increase of pain and discomfort; this, however, rapidly wears away within a few hours, and the usual relief of pain is then experienced. This we especially noted in a medical *confrère*, and to use his words, the pain and discomfort were greatly increased after the

application of one hour, but within three hours he experienced a most delicious sensation of comfort and freedom from pain; the second application was followed by complete relief of all symptoms, and he was able to walk after the fourth day of treatment, the function of the joint having returned to the normal state. In this case the gentleman weighed something over 220 pounds. Of course in this class of injuries the intense heat prevents the extravasation of blood and the exudation of lymph between the tendon and its sheath, and if blood or lymph be present they are rapidly absorbed.

CASE II.—A strikingly successful case. L. E., aged forty, who after a fall of twenty feet sustained a very severe sprain of his right ankle; was suffering excruciating pain when brought to the hospital. Heat was applied to the limb for one hour, until the full limit of tolerance was reached; limb was removed from the apparatus, a Coterell dressing applied, and the pain was entirely relieved. This process was continued for one hour on three consecutive days, the patient walking out of the clinic on the third day.

CASE III.—Alcoholic; received a severe sprain of ankle two days before admission to hospital. Heat was applied for two hours, through the carelessness of the attendant. Patient was lost sight of for two weeks, at expiration of which time he returned with Coterell dressing intact, stating that he had experienced no pain during the interval, and had been walking on the injured member from the time of the first application.

CASE IV.—W. B., while walking on a coke bank, turned on his ankle with such force that a hole was torn in right side of shoe at the site of the external malleolus. He was taken to the hospital in the ambulance. Heat was applied for one hour, after which a Coterell dressing was applied, and the patient was walking on the third day.

CASE V.—Jenette C. while walking the street slipped on a banana peel and received a severe sprain of left ankle. When brought to the hospital she was suffering intense pain and the joint was greatly swollen. A single application of heat was made and a Coterell dressing applied, and the patient left the hospital immediately, walking on the injured limb.

CASE VI.—Marie M., aged twenty, fell from a bicycle, receiving a sprain of the right ankle. When admitted to the hospital her limb was enormously swollen. Heat was applied for four consecutive days; after the

fourth application a Coterell dressing was applied, and the patient walked home without much effort.

Numerous other cases were treated in like manner, with the same gratifying results. In the great majority of cases pain was relieved in a marvelous manner, and the function of the joint was restored to the normal in all cases after the fourth application. We have experienced the same good results with the treatment of smaller articulating surfaces; the following case serves to illustrate:

CASE VII.—Mrs. C., after a severe fall, in an attempt to save herself threw out her right hand, injuring thumb. Rapid traumatic plastic synovitis followed the injury, with adhesions locking the thumb under the index finger. Unsuccessful attempts had been made on several occasions to relieve the condition. Heat was applied to injured member, at a temperature of  $340^{\circ}$  for one hour, after which the adhesions were forcibly broken up, and patient was enabled to use her thumb freely.

We have not experienced the same uniformly successful results in chronic joint injuries. This is to be explained in part by the fact that in acute injuries the excessive application of heat causes a vasomotor dilatation, thus relieving engorgement of capillaries and in consequence pain. In chronic cases on the other hand, the exudate organizes into a low grade of fibrous connective tissue; there is not the same capillary dilatation, and the same relief from pain is not experienced. We have also observed in simple hydrops cases that the infusion in the majority of cases is rapidly absorbed, although the time required for treatment is considerably longer than in acute conditions. In those cases of sprains showing the peculiar tendency to plastic formations of comparatively recent date, the same good results were obtained as in the acute conditions, but when of very long duration little good resulted from the applications.

These results are decidedly an advancement over the older methods of treatment of sprains. Formerly a sprained ankle required from five to six weeks of active treatment, with serious incapacitation of patient for active duties, and the patient almost invariably suffered pain, discomfort, and swelling of the limb for several months afterwards.

Careful measurements of the joints were made, and a decided diminution in diameter occurred within a period of twenty-four hours afterwards.

In chronic synovial effusions of joints our

experience has been limited to four cases, in one case of hydrops articuli of both knees, for which operation was refused by patient. Thirty applications of heat were applied by way of experiment. Accurate measurements of the circumference of each joint were made, with a marked diminution in the size and effusion. After the thirtieth application there was still some fluid in the joint. In this case we noticed a marked decrease in the weight of the patient, and treatment was discontinued. The remaining three cases were not of such long standing; while they were benefited in many respects by the treatment, yet the results were not so gratifying as in the treatment of the acute cases. In these three cases the joint was fixed in the interval. Treatment was discontinued after ten applications, and the usual treatment for these conditions was carried out.

We have met with unvarying and remarkable success in the treatment of acute synovial effusions, the patient experiencing a rapid relief from pain and progressive diminution of the effusion.

Our experiences in these cases coincide in every way with the experience of Professor H. C. Wood in his article, in which he says: "The application of dry heat is of very little value in chronic joint conditions."

*Tuberculosis.*—We have been very much interested in the application of hot air to the treatment of tubercular arthritic affections. We have been unable to secure sufficient material as a basis for positive statements; we thought that we might in some way be enabled by the application of a very high temperature to destroy the tubercle bacillus. It is a conceded point that the tubercle bacillus is easily affected by comparatively low temperatures, and its activity destroyed at 160° F. Taking for granted a child with tubercular arthritis, the joint of course very small, if the temperature of the apparatus be raised to 380° F. or an interior temperature of 350°, it seemed to us possible that with a temperature of 230° in actual contact with the skin sufficient heat might be brought to all parts of the joint by continuity and contiguity of tissue, and that we might thus destroy the organism. Unfortunately we were only able to experiment upon one suitable case; this was one of tubercular skin infection in a veterinary surgeon of Downingtown. Sections of the ulcer were made by Dr. Raven, of the University of Pennsylvania, and tubercle bacilli were found. Five applications of from 380° to 390° were made

at intervals during six weeks. The ulcer promptly cicatrized, all induration disappeared, and the Doctor writes that he has had no further trouble for the past four months, and is evidently cured.

We have as yet not been able to experiment with other local non-pyogenic infections. We think, however, if the heat could be applied that its curative effects upon lupus would be quickly demonstrable. Of course, it is needless to say that sufficient heat could not be applied to the skin for the purpose of destroying pyogenic organisms, as these microbes are only killed by such temperatures as would entirely disorganize the human tissues.

In acute rheumatic cases we have met with gratifying results in the use of dry heat. The patient experiences an immediate sense of relief from pain, and a marked diminution in the swelling of the part. In one case we have in mind the usual treatment had been thoroughly tested for two weeks without result; the pain was very severe, and patient experienced her first relief from pain after the use of the apparatus. Six other acute cases seemed to be completely cured, while the remaining eight were greatly improved. Of the chronic cases we treated thirty; all experienced a relief from pain, but there was no permanent improvement manifested. This seems to be the experience of all observers.

*Rheumatoid Arthritis.*—Our experience with the treatment of rheumatoid arthritis has been disappointing. We experimented upon one man of twenty-eight years in whom nearly all the joints of the body were involved; the patient was unable to walk without the aid of crutches. The case was one of fifteen years' duration, and all forms of treatment known had been tried unsuccessfully. Accurate measurements were made of the joints before and after treatment; pulse, respiration and temperature were carefully noted. Both lower extremities were exposed to a temperature from 300° to 320° F., each limb being permitted to remain in the apparatus for a period of one hour. We were led to expect brilliant results after the second heating, the patient being able to walk out of the clinic without the aid of his crutches, and his general condition seemed improved. After about ten days, however, he became anemic, lost eleven pounds, and was forced to discontinue treatment, and since then the patient's condition has been much worse than before the treatment was begun. From the experience of Professor Wood it would seem

that the hot-air treatment is absolutely contraindicated in rheumatoid arthritis, and in fact in cases of simple rheumatism with any bony exostoses about the joints; and little or no good may be expected from the treatment of these cases.

*Leg Ulcers.*—Nine cases of the ordinary callous ulcer of the leg were subjected to the application of heat. Assuming that the circulation is increased in the part, we hoped by the resulting lymphatic stimulation to obtain granulation tissue reaction, and thus by favoring a better metabolic exchange in the tissues to hasten the cure of these otherwise obstinate conditions. These cases were somewhat improved, and in several the ulcers rapidly took on a healthy granular appearance. The callous area is rapidly softened and the ulcers look clean, and the granulations when formed have the normal healthy appearance. We concluded that this will be an excellent preliminary procedure in the treatment of these conditions.

*Elephantiasis.*—In the one case of elephantiasis subjected to this treatment we had hoped to stimulate the lymphatic system, and thus bring about a certain amount of improvement. Patient discontinued treatment voluntarily after the third application, and no definite conclusions could be drawn.

*Fractures.*—Thirty fractures, including seventeen Colles, six of tibia and fibula, seven of fractures of the lower end of the humerus, were subjected to the hot air after the dressings had been removed. It is usually stated in text-books that the average cure of a broken bone requires about six to eight weeks; this only includes the time the fracture is uniting, but many weeks and sometimes months are required to limber up joints and tendons before the normal function is restored. Colles's fracture is of very frequent occurrence, and it is well known the disability that follows this fracture often extends over a very long period. We hoped the hot air would so soften the adhesions that a rapid absorption would speedily follow and the function of the joint be rapidly restored. We were right in this surmise. In every case after the splint was removed the part was subjected to heat to the point of tolerance, which we observed to be considerably below the usual limit, which is in all probability due to the defective nutrition of the part, and the excessive amount of engorgement of the lymph channels.

In every case the function of the limb was rapidly restored, edema and swelling rapidly

disappeared, and the patient was enabled to follow his usual avocation much earlier than in cases treated by massage and electricity. Massage combined with the hot air treatment might still further hasten a cure, but this procedure was eliminated from our cases for experimental purposes only.

*Dislocations.*—We treated a number of dislocations of various joints and met with uniformly good results, in causing the absorption of the lymphatic adhesions between the articular surfaces and a rapid disappearance of the swelling. Heat was applied when the dressing was removed and the capsular ligament supposed to be entirely healed.

*Tenosynovitis.*—Eight cases of tenosynovitis were treated; all were of traumatic origin, seven being about the wrist-joint and one at the elbow; four were acute and four chronic. Of the acute cases all were promptly relieved by four treatments; splints were applied in these cases after the application of the heat. In the chronic cases improvement was slower; the pain was promptly relieved, but crepitation could be felt for some time afterward. After seven heatings patients were cured and able to return to work. The heat seemed to be of special value in these cases, and when the exudate about the tendon was not excessive it was rapidly absorbed. In those cases in which the exudation was excessive the use of an antiseptic seton was combined; the improvement was rapid, and permanent cure soon resulted.

Assuming that the theory in regard to the destruction of the tubercle bacillus by the application of a high degree of heat is correct, we think that the treatment should be followed by the most brilliant results in cases of tubercular tenosynovitis.

*Ankylosis.*—Seven cases were treated—two of elbow, three of knee, and two of shoulder. All these cases were of traumatic origin and of long duration. As many as twelve or fifteen applications were required in each case before permanent improvement was noticeable, but in all the final results, with the exception of one elbow, the range of motion was increased to a remarkable degree. The elbow case discontinued treatment of its own accord.

In conclusion, we believe that the application of dry heat will find its greatest use in those cases of acute origin, such as sprains, tendinous inflammations, acute muscular strains, acute rheumatic conditions, and as an after-treatment of fractures and dislocations, to promote and aid the elimination

of effete substances through the skin, by sweating and through the lymph channels, increasing the blood-supply and thereby the nutrition of the part. We think it is absolutely contraindicated in cases of rheumatoid arthritis, and of but little value in chronic rheumatic affections. We believe with Dr. Wood that the general sweating has something to do with the relief of these cases. Little experimental work in the line of tuberculosis has been done, but the brilliant results obtained in our one case encourage one to further investigate this matter. We are now doing some experimental work with the view of ascertaining whether the application of a high degree of dry heat will in any way facilitate the penetrating power of ointments. One can readily see the boon to syphilographers if the permeability of inunctions be furthered, thus enabling one to rapidly saturate the system with physiological doses of mercury.

Our experiments also have led us to believe that if an apparatus could be constructed enabling one to adapt this method of dry heat in pulmonic congestions, the vasomotor dilatation ensuing, literally bleeding one into his own arteries, many distressing and dangerous symptoms, as cyanosis and dyspnea, might be relieved or mitigated. It seems to us that this subject is well worth further investigation.

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#### THE POST-OPERATIVE TREATMENT OF SURGICAL CASES.

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BY THOMAS LEIDY RHODES, M.D.,  
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Hospital.

(Continued from page 664.)

**Vomiting.**—One of the most troublesome symptoms with which we have to deal after anesthetization is vomiting, and it is necessary that the patient should be constantly watched until consciousness is fully restored and the sickness at the stomach has passed away. Very few patients come out of the anesthesia without experiencing some degree of gastric disturbance, a severe retching representing the height of the distress in some instances, while in others a continual ejection of the contents of the stomach may be but a prodrome of a most alarming state.

As soon as the patient is arranged properly in bed means should be taken to avert this unpleasant sequel to the anesthetic. The patient, as a rule, will do better by lying on his back, pillows being laid aside, and the

head and shoulders resting low, so that the ether vapor may pass from him more readily. A towel is spread about his head and shoulders and a basin is within easy reach to catch the vomitus, if necessary. It is well, however, not to let the patient see the basin while he is regaining consciousness, as the sight of it may be suggestive enough to provoke an uncontrollable nausea. If the gastric disturbance is nothing more than a severe retching, and this condition has resulted from the administration of the anesthetic *per se* and is not due to the accumulation of a large quantity of ether-soaked mucus in the stomach, it may be checked by a simple maneuver which the writer has frequently used with success. The head is thrown backward and traction is made strongly upwards with the hands, on each side of the lower jaw. Vomiting does not occur unless there is fixation of the diaphragm and closure of the glottis, and by making traction upward on the lower jaw the hyoid bone is raised and with it the epiglottis. The reflex action of this maneuver will generally control a slight nausea and retching. While this is being done the patient's face should be bathed with cold water to aid in restoring consciousness quickly. On the other hand, if vomiting comes on, as it usually does in patients in whom there has been profuse bronchorrhea during the administration of the anesthetic, it is the direct result of the irritant action of the ether-soaked mucus on the gastric mucous membrane, and it is well to let the patient get rid of this mucus rather than to retain it and let it be the cause of continual nausea during the first twenty-four hours. In these cases Hearn advises the administration of a half glassful of warm water to induce vomiting to rid the stomach of its contained mucus at once. The moment he starts to vomit, the patient's head is turned and held to one side, he is restrained from rising, and the basin is held alongside his head. If he has not recovered consciousness sufficiently to understand intelligently the directions of the attendant, his mouth is wiped out frequently with a towel so that the retained mucus or particles of food will not pass the chink of the glottis and enter the trachea, a source of great danger from vomiting and one to be carefully guarded against. The local anesthesia of the parts interferes with the usual guarding of the passageway to the lungs, and the patient may become asphyxiated from particles of food lodging in the trachea

or bronchi, providing the necessary precautions have not been taken to guard against this occurrence by a previous course of dieting and by withholding food for at least five hours before operation.

There is one surgical affection, however, which may be mentioned here, where even a course of dieting and the withholding of food for several hours before operation is not a sufficient prophylactic against this occurrence. In stenosis of the pylorus the ingested food is improperly cared for, owing to the associated changes which occur in the viscus, and the stomach constantly contains a quantity of undigested material and curdled milk which cannot at once pass the stricture at the pyloric end. These particles of food it has been shown lie there for days at a time, and it will be readily seen that the usual precautions before anesthesia will not relieve this condition. Dr. Hearn has put it down as a cardinal rule that before operating for stricture of the pylorus the stomach must first be thoroughly emptied by irrigation, so as to avoid the later dangers from ether vomiting.

A case illustrating this point was recently seen in one of the city hospitals, where a noted surgeon proposed to do an operation for stricture of the pylorus. The abdomen was opened, but the case was found to be inoperable, and the exploratory incision was closed. On being lifted from the table the patient retched a great deal, he became cyanosed, and in spite of efforts to revive him expired shortly after. The post-mortem disclosed the bronchi filled with particles of undigested food which had regurgitated into the trachea during the efforts at vomiting. Yet this patient had not received food for some days.

If the attendant knows that his patient's stomach contains no food or curdled milk, he has nothing to fear from this source, for should some of the vomitus enter the patient's trachea, being nothing but a thin, frothy mucus, it can do no damage even to the mucous surface.

The principal harm lies in the fact that the vomiting, if long continued, causes much cardiac depression, and that it may lead to a misplacement of the dressings and thus interfere with early wound repair; and if it continues beyond several hours and after the patient has fully regained consciousness, means must be taken to check it. A mustard plaster applied to the epigastrium often suffices, with an ice-bag resting under the nape of the neck. At the same time the expedient

of Mackenrodt may be carried out by covering the patient's face with a cloth saturated with vinegar, so that all the air inhaled contains vinegar vapor. No food or fluids should be administered internally while these measures are being carried out. At times, however, it may not yield to this simple treatment, and various internal remedies must be resorted to. Twenty drops of a five-per-cent. solution of eucaine hydrochlorate is given by the mouth in a teaspoonful of very hot water, and repeated every fifteen minutes until four or five doses have been given. This failing to allay the nausea, the popular prescription of Hearn may be tried:

℞ Spiritus chloroformi, 8 minims;  
Acetum opii, 3 minims;  
Mucilage acaciae,  
Aqua, aa q. s. 1 drachm.

Repeated every hour; or the writer's formula:

℞ Hydrarg. chlor. mite., 1-10 grain;  
Cerium oxalatis, 2 grains;  
Codeia sulphatis, 1-5 grain.

Ft. Charta.

Give at intervals of half an hour until four or five powders have been administered. This not only prevents any increase in the amount of mucus collected in the stomach by checking secretion, but also acts as a gastric sedative.

Should the vomiting continue throughout the day and show no signs of abating after the several remedies mentioned have been tried, we can resort to an exceptionally valuable measure in its therapeutics in the way of lavage, a method first advocated by Kussmaul, but greatly simplified in its application since its introduction. The stomach is irrigated with a pint or more of warm boric acid solution (five grains to the ounce) and by a process of siphonage is emptied at once of all the remaining ether and mucus, and bile that has regurgitated through the pylorus from the continued efforts at vomiting. The arrangement that is most commonly used for this purpose, and which is so simple in its construction that it can be made ready at a moment's notice, consists of a glass funnel of a capacity of about 300 to 500 cubic centimeters, attached to a piece of soft-rubber tubing about a yard in length and connected with a soft-rubber stomach tube having several openings at its lower end. The tube of Ewald is the preferable one. The patient's head is raised on a pillow, for when the head is slightly bent forward this position favors the entrance of the tube into the esophagus. The stomach tube, having first been im-

mersed in a pitcher of warm water, is inserted into the open mouth of the patient by the attendant, and is passed into the pharynx. It is unnecessary for the attendant to insert his finger into the mouth of the patient during this procedure. The patient is now told to breathe deeply and to swallow once or twice, and the tube is pushed down rapidly, with the right hand, into the stomach, a distance of forty-four to forty-five centimeters. By raising the funnel several feet above the level of the patient's head, and filling it with the warm boric acid solution and allowing the fluid to run into the stomach, then lowering the funnel so as to permit the fluid to run out again, the stomach may be filled and emptied until the fluid returns clear and the viscus is thoroughly washed out. In case the outflow of the fluid is suddenly arrested by particles of food obstructing the openings in the stomach end of the tube, a small quantity of solution is poured into the funnel again and the siphonage repeated. When the fluid returns clear the stomach tube is withdrawn quickly. While removing the tube it is pinched shut at its free end to avoid the passage into the esophagus or pharynx of some of the mucus, etc., contained within the tube. This method will be found highly effectual in the management of obstinate cases. Bonnefin's method of faradization over the pneumogastric nerve has in our hands yielded no apparent good results.

If the foregoing treatment proves ineffectual and the vomiting continues unabated for two days after the operation, it is generally a prodrome of peritonitis, and this complication should be suspected, especially after abdominal operations. If the vomiting is of a stercoraceous character, intestinal obstruction exists. Each of these grave conditions must be met with a correspondingly prompt and decisive surgical interference.

*Thirst.*—If the anesthesia has been prolonged for an unusual length of time, and if its administration has been followed by copious vomiting, there occurs as a sequel an inordinate and distressing thirst. This craving for water is often so great that patients have risen from their beds several hours after serious operations, the nurse being otherwise occupied, and have drained the glass of the neighboring patient in the hospital ward. This craving is especially severe after operations in which the peritoneal cavity has been opened and the abdominal viscera handled, but the reason for this fact has not yet been definitely explained.

To withhold fluid in a limited amount from cases in which there is marked thirst after operations entails an amount of suffering and restlessness that may interfere materially with the patient's ultimate recovery. The mandatory abstinence from drink observed by some surgeons with their patients for the first day, or even the first forty-eight hours, is unnecessary and unwise. Operative cases after anesthesia should not be allowed to suffer cruelly from thirst; but at the same time it is equally unwise to answer every appeal of the patient for water. The existence of shock, the effects of the constant emesis, and the direct action of the ether-soaked mucus on the gastric mucous membrane, leave the stomach inert and render absorption inactive, and it is useless and even harmful to distend the stomach with copious draughts of water to the detriment of the already enfeebled powers of digestion. Such a course simply results in greater discomfort and the vomiting is renewed. By judicious management the patient's thirst can be alleviated without causing him any additional discomfort or nausea and without encroaching upon the functional capacities of the stomach from the ingestion of large quantities of fluid.

The prophylactic measures advocated by Humisten in the management of this troublesome symptom are of the utmost value. Patients are taught to drink half a pint to a pint of water every four hours several days prior to an operation of gravity, and particularly before an abdominal section is to be performed, to supply to the tissues the loss by catharsis and to anticipate the usual sequel of the anesthetic. The water should preferably be given hot, and about two quarts should be administered during each twenty-four hours. This preliminary treatment has the power to allay to a great extent the thirst which usually follows operation, and has the additional advantage of keeping the mucous membranes moist, and flushing the kidneys.

Next in importance is the method of Kelly, who counteracts the disagreeable subsequent thirst by performing enteroclysis at the completion of his major gynecological operations. This treatment is especially effective after operations in which hemorrhage has been profuse and the tissues have been drained abundantly of their normal supply of fluid. After the completion of the original operation, and while the patient is still on the operating table, his hips are elevated on pillows and a quart of warm saline solution



is injected high up into the bowel through a large-sized soft-rubber catheter. In order that this injection be effective it is necessary that the lower bowel should have been previously emptied and cleansed by catharsis and repeated enemata. It is also essential to success in carrying out this procedure that the anesthesia be continued during the performance of enteroclysis, in order that the bowel will retain the injected fluid.

When consciousness has returned the tongue should be frequently moistened with a weak mixture of tincture of myrrh, a teaspoonful to half a glassful of water, or a weak solution of borax, or a solution of glycerin one drachm, in alcohol and water, each an ounce; a piece of linen being saturated with one of the several solutions, the patient is told to hold this in his mouth for several minutes at a time.

When all efforts at vomiting have passed away, which in the general run of cases is in from four to five hours after operation, the patient is allowed to sip slowly a cupful of weak tea, without sweetening, or hot water, or toast water, according to his liking. This is administered to him with a spoon by the attendant, the patient lying quietly in a comfortable position. Under no circumstances should he be allowed to rise or drink the fluid down in gulps. The stomach must be coaxed back to its normal state by gentle and persuasive means. After sipping the hot tea or water, as the case may be, the patient usually drops into a gentle sleep, lasting about a half hour, from which he awakes feeling somewhat refreshed, but still annoyed with the feeling of thirst. At this stage several hypodermics of distilled water have been found useful to control the annoying symptom. If the stomach is completely settled, finely divided ice and champagne, or if the latter is not obtainable, finely divided ice alone, may be admissible, taken in small quantities, as was the tea. This will be grateful to the mouth and will relieve thirst temporarily, but it should be given sparingly, a teaspoonful not oftener than once every half hour. The ice is pulverized by placing a small lump in a clean towel and striking it against some solid object. The practise of placing a bowl of cracked ice alongside the patient's bed and allowing him to help himself unreservedly is to be condemned. The gaseous distention and renewed nausea which such action brings about are harder to combat than the original thirst.

If thirst is an after-effect of profuse hem-

orrhage which occurred at the time of operation, where the tissues have been drained of an amount of fluid necessary for them to functionate properly, it will be allayed by the same means used to combat the resulting shock as set forth under this heading, namely, by hypodermoclysis or by saline transfusion.

Should the stomach continue to be rebellious for any unusual length of time, enteroclysis must be resorted to, to relieve the thirst as well as other symptoms; a pint of normal salt solution being injected by means of a fountain syringe and rubber tube high up into the large bowel; or, if necessary, stimulants may be combined with the enema and an ounce of brandy or beef-jelly added to tepid water, from four to twenty ounces, passing into the bowel in the same way.

Later in the course of the treatment the patient may partake freely of water, or other beverages may be more grateful and may be substituted, as Apollinaris, seltzer, weak lemonade, weak iced tea with lemon-juice, barley water, or water commingled with jelly. At this stage of the convalescence the fancies of the patient and the experience and judgment of the attendant will furnish a list of beverages whose worthy attributes will not exist alone in its variety.

[To be continued.]

#### STIMULATION OF THE GASTRIC MUCOUS MEMBRANE TO AID IN THE ABSORPTION OF IMPORTANT DRUGS.\*

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I have already called attention in an earlier article to the importance of studying the rapidity of absorption and elimination of drugs in connection with their general physiological effects and their dosage.

In certain states of profound vital depression the gastric mucous membrane does not carry on its functions of absorption as it does in health, and as a result we recognize the fact that the use of a drug by the mouth will probably produce no effect because it will lie unaffected in the stomach for hours. Thus in surgical shock or in advanced alcoholic coma it is not by any means rare to find that repeated large doses of drugs have been

\* A paper presented to the Section on Medicine of the College of Physicians of Philadelphia, March 15, 1897.

given with no result for the time being, but as the patient recovers and absorption is renewed the greater part of the combined doses is absorbed at once and the patient is more or less poisoned by the aggregated medicinal doses which he has received. While it is true that patients in this condition if skilfully treated rarely meet with this accident, I believe that in many other instances where the state is less grave the slow absorption of the medicines given is not considered; that the physician is content to give the medicine and then to regard it as physiologically active without considering the possibility of gastric torpor. In some chronic conditions the slow absorption of a remedy is not disadvantageous, but in acute cases its rapid absorption may be of vital importance. It therefore occurred to me that it might be possible to combine with a remedy another substance not possessed of general physiological action, but capable of stimulating the gastric mucous membrane so that it would have its absorption functions increased. It is well known, of course, that iodide of potassium when absorbed is speedily eliminated by the salivary glands, probably in the form of iodide of sodium. Different investigators have studied the rapidity of this elimination and have found that it usually begins in from ten to fifteen minutes, or a little longer, and lasts over many hours. The iodine can be tested for in the saliva by means of starch paper and fuming nitric acid, which will set free the iodine so that the iodine-starch test can be made. Another method of testing the rapidity of absorption would be by the administration of rhubarb and developing a red color in the urine by the addition of liquor potassa, but as the test should be made every few minutes it is much easier to use salivary secretion as a testing medium.

The methods used were as follows:

Cachets containing three grains each of iodide of potassium were given to four patients in the wards of the Jefferson Medical College Hospital, none of whom were suffering from any known gastric lesion or functional disturbance, and convalescent. In other words, the stomach of each was in a condition equal to that met with in the ordinary patient. After the lapse of a few minutes the saliva of each was tested with starch and  $\text{HNO}_3$  every two minutes until the reaction for iodine was obtained. It was found that the reaction was obtained at the following times:

In the case of the patient G. D. the iodine test was obtained in twenty-nine minutes.

In the case of the patient B. it appeared in thirty-five minutes.

In the case of the patient L. it appeared in nineteen minutes.

In the case of the patient McD. it appeared in twenty-seven minutes.

The delay in the appearance of the iodine in the saliva over the delay usually met with is due to the time required for the cachet to be dissolved and set free the iodide of potassium in the stomach. The use of the cachet was, however, necessary in order that the drug might be given in a soluble form and yet not remain in the mouth even as a trace.

The same patients several days later, after all trace of iodine had disappeared from the saliva, received a second set of cachets, in each of which was placed not only three grains of potassium iodide but in addition one grain of powdered capsicum, and the results reached were as follows:

The patient G. D. gave the iodine reaction in nineteen minutes, or ten minutes sooner than before.

The patient B. gave it in twenty-nine minutes, or six minutes earlier.

The patient L. gave it in nine minutes, or ten minutes earlier than before.

The patient McD. gave it in forty-five minutes, or eighteen minutes later than before.

Whether this last result depends upon the unknown prior ingestion of food or drink could not be discovered.

In order to make a control experiment with this case another test was made several days later, after all iodine had disappeared from the saliva, with the result that the test was developed in seventeen minutes, a gain of ten minutes over the test without the capsicum.

It is evident, therefore, that the use of a gastric stimulant aids very materially in the absorption of the other drug, and the moral would seem to be that whenever it is possible it is well to combine with a drug some gastric stimulant to aid in its absorption. This is particularly necessary if there is any reason to believe that the stomach is in a state of atony, as evidenced by a relaxed tongue and a history of excessive eating or drinking or chronic catarrh.

Iodide of potassium is a drug which lends itself readily to such experiments, but it is probable that other remedies could be studied almost equally readily.

*THE DIPHTHERIA BACILLUS IN THE  
TREATMENT AND SEQUESTRA-  
TION OF CASES OF DIPH-  
THERIA.*

BY ROBT. L. PITFIELD, M.D.,  
Philadelphia.

There are certain biological characteristics of the diphtheria bacillus, all of which should be familiar to every clinician if he would intelligently conduct the management of a case of diphtheria.

The life history of the organism within and without the body, the thermal death point, the action of desiccation, moisture, light, and antiseptics upon it, and lastly and most important, its pathogenic properties—all actively concern the clinical conduct of a case.

The native home of the diphtheria bacillus is the mucous surface of the human fauces; the various warm, moist, dark crypts secreting alkaline mucus form a combination of conditions exactly suited to the life and growth of the bacillus. Outside of the throat it rarely lives for any length of time, leading no saprophytic existence as do many other pathogenic microbes, such as the bacilli of cholera, typhoid, and tetanus.

Cases of diphtheria in cats, chickens, and other lower animals have been occasionally reported, but they are rare, and diphtheria in these animals figures very little in the etiology of the disease in human beings. The bacillus does not long resist the action of sunlight, and diffused daylight very probably attenuates it. It resists desiccation from three to four weeks—that is, in the dark or places unexposed to sunlight, as pockets of clothing, in books, and the meshes of bed-linen, etc. Moisture preserves its vitality, since the latter condition is essential to its multiplication.

Since there are no spores formed by the bacillus, it is quickly and readily killed by heat; Welch and Abbott found that ten minutes' exposure to a temperature of 136° F. (or 58° C.) was sufficient to prevent the future growth of the germ, and scalding water quickly kills it, moist heat being especially inimical to the protoplasm of all bacteria. Washing and ironing linen, especially if the soap is strong and the ironing done with a hot iron before the articles are well dried, probably destroys the vitality of all bacilli that contaminate it. All bed-linen and clothing, however, should be boiled before washing, and finally immersed in a weak bichloride of mercury solution before drying.

The bacillus is never found in drinking-water and very probably is not associated with sewer-gas, since it does not rise from a moist surface and is not carried by the air circulating in the room nor in the air respired; but it may be expelled by coughing. The air coming from the throat of a diphtheritic patient is sterile except when forcibly expelled; here bits of membrane, food, or drops of saliva are caught up and ejected.

While the air of the sick-room may contain bacilli they are few in numbers, but they have been found on the sheets, pillow-cases, on the furniture, shoes and clothing of nurses, and on the hands and in the hair of the patient; also on dishes, napkins, and night-dresses.

The most important biological features of the organism are its uniform tendency to secrete toxin when it finds lodgment in the throat, and to form pseudo-membranes by coagulation necrosis, the latter being due to the toxin; and this is the sum and substance of the pathology of diphtheria. Cloudy swelling in the muscles of the heart and substance of the kidneys, with fragmentation of the nuclei of cells, and degeneration of the nerve trunks, are but ultimate manifestations of the toxicity of the ptomaine.

There is but one way to meet the action of the toxin, and that is with the antitoxin; this should be given as early after infection as possible. The infecting organisms and false membrane should also be destroyed and removed, and for this purpose Loeffler's mixture may be used, also Monsell's solution and ten-per-cent. formalin, with sprays of peroxide of hydrogen between the applications of either of the above.

Since sunlight speedily kills the bacillus a sunny room should be chosen for the sick-chamber. During the disease ten-per-cent. solutions of trikresol or formalin should be used to disinfect all discharges from the throat and nose; or these should be caught on absorbent cotton or rags and burned, and the hands and face sponged with a five-per-cent. solution of formalin. A sheet saturated in ten-per-cent. formalin solution and hung over the door and kept wet, not only prevents the few floating bacilli from escaping, but reminds those persons without not to enter and those within not to leave until the hands are disinfected. All dishes should be scalded before they are removed from the sick-room, and then carefully washed separately in hot water with plenty of yellow soap. Fecal discharges are not very con-

tagious, possibly not at all so; however, bichloride solution may be used in the vesicles.

Laryngeal cases demand especial attention and often require intubation or tracheotomy; here evaporating water to which a little lime or ammonia muriate has been added renders the air moister and favors respiration.

The convalescent patient should be quarantined until a careful bacteriological examination proves the absence of bacilli from his throat and from that of his nurse. This is the most essential feature of the whole preventive management of a threatened diphtheria epidemic. Various measures may be employed to hasten the elimination and destruction of the bacteria. Thus, formalin in five-per-cent. solutions hourly may be used as a gargle when the patient is awake; astringent applications should be avoided, since they occlude the openings of the tonsillar crypts and prevent free access of the antiseptics. The woodwork of the room should be carefully scrubbed with bichloride solution, the walls rubbed with bread previously soaked in formalin, and the whole room atmosphere should be saturated with formalin-gas generated from formaldehyde solution; many contradictory reports as to the use of formalin generators that generate the gas from wood alcohol render the use of such appliances of but dubious efficacy. A final washing of the patient in carbolized water or formalin water should complete the hygienic toilet of the case.

One feature must not be lost sight of, and that is the immediate immunization of all children who have been exposed to infection; and for this purpose 500 to 800 antitoxic units in as little serum as possible should at once be injected. While the bacilli may infect the throat of those immunized there is no danger of a virulent form of diphtheria developing. Adults with weak throats, especially those having enlarged tonsils, also should be immunized.

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#### REPORT OF A CASE OF TETANUS.

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BY DR. G. O. COFFIN,  
City Physician, Kansas City, Mo.

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On July 19, 1897, Chas. N., a large and powerfully built colored man, was received into "D" ward of the Kansas City Municipal Hospital at 12.15 P.M. He was an employee

of Swift's Packing House and cut his hand on a piece of bone ten days previously. On admission the wound was still fresh; and there was an ulcer on the shin of right leg from being struck by a car five weeks before.

Six days previous to admission spasms came on, and patient went to bed at his boarding-house. He had tonic convulsions about every one and a half minutes; could open his jaws one inch; the muscles of the entire body were rigid; the mind was clear; there was pain in back; the bowels were constipated; the urine slight; the abdomen full and tense. Temperature at one o'clock 104° F., pulse 120, respiration 16. He swallowed with difficulty, and exhibited abdominal breathing. He urinated at 4.30 P.M., passing a small amount, highly colored.

I gave fifteen cubic centimeters antitetanic serum (Parke, Davis & Co.) at 5 P.M.; also by the mouth a cup of milk. At 11 P.M. another fifteen cubic centimeter injection of the serum; hypodermic of morphine sulphate one-half grain every three hours during the night. Temperature at 6 P.M. 105½° F., pulse 118, respiration 20.

July 20, at 6 A.M., temperature was 103° F., pulse 128, respiration 24. Injection of fifteen cubic centimeters antitetanic serum at 6.30 A.M.; morphine sulphate one-half grain. Seemed better this morning; urinated during the night; bowels had not moved; spasms lighter and less frequent. Diet, egg and milk. Fifteen cubic centimeters serum at 2 P.M.; temperature at that time 103° F. Breathed more freely with his chest muscles, which were less rigid. Gave usual nourishment at supper time. Temperature at 6 P.M. was 103½° F., pulse 126, respiration 26.

July 21. Morphine was injected at midnight, at 2 and 3 A.M.; serum at 2 A.M. Temperature at 6 A.M. 103½° F., pulse 116, respiration 18. Urinated at 8 A.M., scanty and high colored; bowels constipated; spasms slightly harder and oftener. Took egg and milk. Commenced giving chloral hydrate ten grains and soda bromide ten grains every three hours; spasms seemed to be more severe between the hours of 6 P.M. and midnight. Serum injection at 3 P.M. Temperature at 6 P.M. 104°, pulse 120, respiration 18.

July 22, at 6 A.M., temperature was 103½° F., pulse 108, respiration 18. Felt better; spasms as on previous day, but none while asleep. Diet, milk and eggs. Sphincter ani more relaxed. Swallowed more easily. Had no severe spasms during the night. Slept

more during the day than at first. Serum at 10.15 A.M. At 6 P.M. temperature was 103° F., pulse 98, respiration 18; urinated. Half a grain morphine and fifteen cubic centimeters anti-toxin injected at 10 P.M. Castor oil and glycerin *per os* were given at 11 P.M. Patient rested well.

July 23, at 6 A.M., temperature was 102½° F., pulse 96, respiration 16. Urinated more freely; spasms lighter and less often. Serum at 1 P.M.; enema of water and soap at 3 P.M., removing large amount of feces and mucus. At 6 P.M. temperature was 101½° F., pulse 94, respiration 18. Diet, milk and egg.

July 24. Bowels moved at short intervals during the night. Serum at 2.45 A.M., and milk during the night. Temperature at 6 A.M. 102½° F., pulse 104, respiration 20; gave morphine sulphate solution four drachms (half

July 27. Temperature slowly coming down; to-day it was no higher than 99½° F. Gave oleum ricinus. Began to feed him solid food in good quantities; he could not get his jaws open far enough to eat meat; appetite growing.

July 28. Temperature stayed at 99½° F. all day; pulse 90, respiration 26. Decidedly better; ate anything which did not require much mastication. Bowels did not move; spasms further apart and lighter.

July 29. Temperature 99½° F., pulse 90, respiration 24. Ate an enormous breakfast. Began to turn his neck to either side; could raise arms to head, and could flex his legs unassisted; spasms about ceased.

July 30. Temperature 99° F., pulse 94, respiration 24. Bowels moved freely; suffered some from the heat; gaining strength;

grain morphine sulphate) at 10 A.M.; serum at 12.30 P.M. Urinated freely; jaws open same amount as last few days; spasms about the same this morning, but lighter after dinner. At 6 P.M. temperature was 102½° F., pulse 100, respiration 18.

July 25, at 6 A.M., temperature was 101½° F., pulse 90, respiration 24. Bowels did not move during the night. Attempts to open jaws caused slight spasms; opened about half an inch. Serum at 11.30 A.M. Appetite good; arms not so rigid as the legs; profuse perspiration. Temperature at 6 P.M. 100½° F., pulse 96, respiration 30.

July 26. Serum was injected at 1 A.M. At 6 A.M. temperature was 99½° F., pulse 90, respiration 26. Spasms irregular, but less in frequency; very little trouble in deglutition; slight risus sardonicus, but marked opisthotonos, and pain in chest muscles. Serum injected at 8.30 P.M. At 6 P.M. temperature same as morning.

his masseters had not relaxed much, but his other muscles were in better condition. Could raise and lower his head.

July 31, at 6 A.M., temperature was 99½° F., pulse 94, respiration 24. At 6 P.M., temperature 100½° F., pulse 100, respiration 24. Spasms about one every forty minutes while awake, but they were irregular.

August 1, at 6 A.M., temperature was 99° F., pulse 94, respiration 24; 6 P.M., temperature 99½° F., pulse 94, respiration 24. Sat up for the first time to-day. Spasms no more severe than when a person stretches; little pain and no spasm on touching the abdomen or on awakening him.

August 2. Could use his jaws for masticating. Temperature normal.

From this time on he gained strength rapidly. August 6 was the last convulsion. On August 9 he walked unassisted, and since then has worked in the kitchen, has felt well, and has a great appetite.

A comparison of the number of convulsions at the onset and at the last of the disease will show this difference: July 13, spasms every one and a half minutes, or 960 in twenty-four hours. July 31, spasms every forty minutes, or thirty-six in twenty-four hours.

Deducting the time he was asleep leaves on July 31 only fifteen to twenty convulsions in the course of a day.

Owing to the severity of this particular case, and the rarity of tetanus, the writer had invited most of the prominent physicians of the city to call and investigate. They all concur in the opinion that the patient could not possibly have recovered without the use of the antitetanic serum.

During his treatment he was given 1800 cubic centimeters of antitetanic serum hypodermically; chloral hydrate and soda bromide during the spasmodic or convulsive part; and a tonic of arsenic, iron and mercury during convalescence.

Only at one time did he lose consciousness, and that was after a severe convulsion on the second day in hospital. His appetite was ravenous, but it did not become necessary to feed per rectum. His bowels were tight until after the sphincter was relaxed at the time the enema was given. Glycerin and castor oil were used to soften the impacted fecal matter. Morphine sulphate was frequently injected for its anodyne effect.

*A CASE OF ACUTE TRAUMATIC TETANUS CURED BY ANTITETANIC SERUM.*

By J. W. FOSTER, M.D.,  
Kansas City, Mo.

On June 28, 1897, I was called to see Clotelia G., colored, fifteen years old. The patient one week previously had run a nail into the sole of the left foot. There was slight contraction of the masseter and temporal muscles, but no pain, no fever, and the pulse was normal. A cathartic was given and further developments were awaited.

June 29, 8 P.M. Conditions about the same.

June 30, 8 A.M. Pulse 100, temperature 100° F.; slight rigidity of cervical muscles. Ten grains chloral every two hours. Calomel to move bowels.

July 1, 8 A.M. Patient was restless; pulse 110, temperature 99½°.

July 2, 8 A.M. Dorsal and abdominal muscles showed signs of rigidity. Given a

combination of chloral, potassium bromide, extract indian cannabis, and extract hyoscyamus every two hours; patient refused third dose. Pulse 100; temperature normal.

July 3, 8 A.M. Slight pains in the limbs, with more rigidity; facial muscles contracted; no fever; bowels moved. At 4 P.M. gave ten cubic centimeters Parke, Davis & Co.'s antitetanic serum; no rise in temperature. At 8 P.M. ten cubic centimeters antitetanic serum.

July 4, 8 A.M. Rested better through the night; ten cubic centimeters serum. Slept two hours. Took first nourishment—milk, cream, and whiskey. At 2 P.M., more restlessness; no fever; pulse 100. At 8 P.M. conditions were about the same.

July 5, 8 A.M. Pulse 110, temperature 99½°; considerable pain throughout whole body. One-sixth grain morphine hypodermically; after that slept some. Took more nourishment—cream, milk, beef broth. At 4 P.M. pulse was 110, temperature 99½°; ten cubic centimeters serum; quite rigid, but spasms not so pronounced. More serum at 9 P.M. Pulse 114, temperature 100°; one-sixth grain morphine.

July 6. Rested fairly well during night. At 7 P.M., pulse 116, temperature 101°. Bowels moved freely during the day. Ordered tepid baths every two hours to control fever. Spasms more marked on left side, chiefly in hip and leg; muscles of deglutition somewhat involved; quite difficult to swallow without strangling. Spasms lasted from one to one and a half minutes, with interval of three to four minutes. Any undue noise provoked a paroxysm.

July 7, 8 A.M. Passed a fair night; pulse 130, temperature 101°; ten cubic centimeters serum. Paroxysm lighter; intervals of five minutes. Ten cubic centimeters serum at 12 and at 7 P.M. Rather restless during the day; pulse 120, temperature 101½°; one-sixth grain morphine.

July 8, 8 A.M. Rested fairly well during the night; pulse 120, temperature 100°. Still continued sponge-baths every two to three hours. Paroxysms less frequent; duration thirty seconds; intervals of half an hour.

July 9, 7 A.M. Rested badly during night; pulse 110, temperature 100°. Rested better during day. Bowels moved kindly. Took milk, cream, chicken broth. Kept up sponge-baths.

July 10, 7 A.M. Rested fairly well during night; pulse 110, temperature 99°. No medicine, but half a drachm of the bromide mix-

ture mentioned above every four to six hours. Rested quite well during day. Took nourishment freely. At 7 P.M. pulse was 120, temperature 99°.

July 11, 8 A.M. Rather restless during night; appetite fair; beef broth with cream. Pulse 110, temperature 98°.

July 12, 8 A.M. Slept well Sunday night. Muscles of arms and chest somewhat relaxed, but quite a good deal of rigidity of whole body; bowels moved kindly.

From this on the patient made a rapid recovery. This being the fourteenth day I only visited the case every three or four days. At the end of the third week standing and walking were possible; at the end of the fourth week the patient came down to my office perfectly well.

To summarize: The disease reached its climax about the tenth day, then gradually subsided. Highest pulse-rate 130; highest temperature 102°. Very little medicine was given. On the 3d of July Dr. John Punton and Dr. G. O. Coffin were called in consultation, and it was decided to begin the use of Parke, Davis & Co.'s antitetanic serum; only three bottles were used during the treatment of the case.

There was great difficulty of breathing part of the time, due to violent tonic contraction of the chest muscles. The kidneys throughout showed no particular involvement; in fact, all the viscera seemed to act in harmony.

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*CASE OF ACUTE EMPYEMA OCCURRING  
WITH TROUPOUS PNEUMONIA;  
THORACOCENTESIS;  
RECOVERY.*

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The following case occurred during the writer's term of service as interne at the Philadelphia Hospital, and is reported with the permission of the visiting physician, Dr. Salinger:

- The patient, a colored man aged twenty-two, was admitted to the hospital with a history of having slept in wet clothing the previous night, and of having had a chill lasting for a half-hour. The physical examination showed the patient to be well nourished, but with a slight infraclavicular depression of the right side. Heart displaced to the right four centimeters. Crepitant râles

were heard over the lower lobe of the left lung; blood-streaked expectoration. Dulness extended over the left lung as high as the sixth rib anteriorly, and to about the same level posteriorly when the patient was in the sitting posture—change of position causing change of the area of dulness. Obliteration of the semilunar space of Traube. Diagnosis was made of croupous pneumonia, and pleurisy with effusion.

The pneumonic process proceeded, and on the third day the dyspnea became marked, although there was no change in the cardiac position. Aspiration was decided on, and was done as follows: The midaxillary area down to the costal margin was prepared aseptically, by washing with soap and water, then with alcohol, and finally with bichloride 1:1000. A Potain aspirator was used. A sharp trocar and cannula were selected and boiled. The operator's hands having been carefully aseptitized, and the patient placed in a semi-recumbent position, the trocar was inserted between the sixth and seventh ribs in the axillary line. The stop which controlled the tube leading into the exhaust reservoir was opened, but no fluid passed—in other words, a "dry tap." The wound was dressed with aseptic cotton covered with collodion.

The aspirator was then tested; the cannula was free, but in the angle of the tube some distance away a clot of dry blood from previous use was found.

On the following day, the respirations having risen to 44 per minute, and the patient suffering great discomfort, aspiration was repeated very near the first puncture, and about two ounces of pus withdrawn. There was a rise of one degree in the temperature following the operation, but the respirations fell to 28, with much relief to the patient. The apex beat was seen to have moved .5 centimeter nearer normal. Microscopical examination of the fluid was made at once, and large numbers of pus cells and staphylococci were found. Cultivation and inoculation experiments were not carried out. The condition of the patient gradually improved, and on the following day the apex had moved .5 centimeter more to the left, and on the next day, or the sixth of the illness, the temperature had fallen four degrees and the respirations were 18 per minute, the apex being now three centimeters from the normal position.

A large area of dulness remaining, and the heart being still displaced, aspiration was

done a third time, the puncture being between the seventh and eighth ribs. No pus was found, but a small quantity of blood flowed into the aspirator bottle, being undoubtedly from the lung substance. From this time the case made good progress, the lung cleared up, and with the exception of a few fine râles at the right apex, beneath the depressed area noted, the breath sounds were normal. The sputum was examined at this time for tubercle bacilli, and a few found. The treatment now consisted of increasing doses of strychnine pushed to tolerance, with nourishing food; and the heart gradually resumed its proper place. At the expiration of six weeks examination of the sputum failed to show the presence of Koch's bacillus, the heart was normally placed, and the patient was discharged.

Several questions suggest themselves in studying the above case, but before proceeding to their discussion a brief history of pyothorax and aspiration might not prove uninteresting.

The treatment of pyothorax dates back to the remotest antiquity. Pliny in his "History of Nature," book vii, describes the case of Phareus, who after having been given up by his physicians sought death on the battlefield, but receiving a spear-thrust in the chest, pus escaped from the wound, and he recovered. Hippocrates in his "De Morbis Popularibus" describes not only the diagnosis but the treatment of pyothorax. He calls especial attention to washing the patients very frequently with very warm water before the operation was performed; and as Beck in his interesting article on Pyothorax\* says, "Does not this extraordinary cleanliness appear like the dawn of aseptic principles?" Celsus and Galen repeated the doctrines of Hippocrates, Galen probably being the inventor of the aspirating syringe; but later on the whole subject dropped into oblivion. Drouin in the fifteenth century was the first to use the trocar and cannula, but the mortality rose to such a height that aspiration fell into disrepute. Ambrose Paré, Guy de Chauliac, and Fabricius ab Aquapendente tried to restore the old Hippocratic operation of incision to favor, but with only slight success. Corvisart, the surgeon of Napoleon, said thoracotomy always accelerated death. Dupuytren when suffering from pyothorax declined to be operated on. Velpeau had lost all his cases of pyothorax,

and Dupuytren had only seen four recoveries. Bowditch in 1852 advocated and used aspiration largely for diagnostic purposes, but it was only when Lister showed why it was unsafe that aspiration and incision for pleural effusions were restored to favor.

*In the case we have reported, what caused the heart displacement?* First, there are the pleuritic effusions, and beside empyema there are the ordinary effusions of pleurisy—passive effusions (hydrothorax), in the last stages of cardiac or renal disease; effusions mixed with air or blood, of malignant disease, or advanced tuberculosis; hemorrhagic pleurisies; chylothorax, from injury to thoracic duct; pleurisy by traumatic infection. Other causes are valvular incompetence with hypertrophy, tumors of various kinds, plastic pericarditis, and the perforation of a subphrenic abscess into the pleural sac. From the age and previous history of the patient, and the result of the aspiration, with the subsequent disappearance of the cardiac displacement, a reasonable answer to the question would be undoubtedly pleuritic effusion, which had become an empyema.

*Was the case not an old tubercular pleurisy with an acute empyema added?* As a large number of inflammations of the pleura, exclusive of trauma, have their origin in tubercular processes, this view is plausible, but the very slight lung involvement, and the apparently complete absorption of the exudate, are against this view and in favor of a metapneumonic pleurisy, afterward becoming an empyema. For "when the pleuritis is due to this (Koch's bacillus) as the irritating agent, the effusion is found to be sterile;"\* yet to quote further, "it undoubtedly furnishes a favorable culture medium for other organisms, notably the pneumococcus and staphylococcus." It is possible that the tubercular lesion of the lung had set up a slight pleuritis, a sterile exudate had been poured forth, which had become infected by the pneumococcus, and later by the staphylococcus, as the latter germ only was found in the specimen. In 109 cases of pyothorax examined by Netter, he found the streptococcus fifty-one times, pneumococcus thirty-two times, tubercle bacillus twelve times. Beck's report† shows of forty-nine cases, streptococci were present sixteen times, pneumococci ten times, and tubercle bacilli three times; and as he further says: "In tubercular pyothorax

\* *International Medical Magazine*, January, 1897.

\*Fowler, *Annals of Surgery*, November, 1896.

† *International Medical Magazine*, January, 1897.



the tubercle bacillus is in the majority of cases absent; its absence therefore does not disprove the presence of tuberculosis." The only objections to the view that this was a case of slight tubercular pleurisy becoming an acute empyema are the absence of a thickened pleura, and the early and complete absorption of the exudate. Would not the result in this case be an argument for the therapeutic value of early aspiration?

*Did the aspiration convert a simple pleuritic effusion into an empyema by infective process?* This is possible but not probable, for the trocar and cannula were boiled and the greatest care taken to prevent such an accident. The fact that a clot was found in the tube of the aspirator we do not think proves that infection took place, as it remained a dry inert mass at some distance from the wound—simply preventing the exhaust from acting on the pleural contents. Then, again, no fluid was withdrawn; the history of most cases of infection has been that a simple serous effusion was converted into a purulent effusion. It is impossible to know when the effusion became purulent, for the heart displacement did not increase when the dyspnea became marked, remaining the same as when the patient was first seen; and yet the effusion was undoubtedly the cause of the dyspnea, for the latter immediately improved when aspiration was done.

*For so much heart displacement why was there not more than two ounces of fluid found?* It is by no means certain that all the pus was withdrawn, in fact it is more than probable that a quantity remained; therefore the ratio between the cardiac displacement and the amount of fluid withdrawn is not a true one. As Fowler says, "in even small effusions, the presence of the effused fluid so increases the dyspnea as to become a source of great discomfort, or threaten life."

A mass of coagulum, a fibrous pleural band, an adhesion, or a small pocket of pus, might have been opened, which would account for the small amount evacuated.

*Would the empyema have been absorbed without aspiration?* According to Kracht, quoted by Paget,\* "no micro-organisms are present in simple serous effusion; but in empyema following pneumonia the pneumococci of Fränkel are the inciting cause, for in the early stage these alone are found. The pneumococci may fail to overcome the resistance of the tissues, may die, undergo

degenerative changes, and with the effusion which they have caused be absorbed." In our case the staphylococci were found and not the pneumococci, and whether the effusion was originally a tubercular or meta-pneumococcal effusion can only be determined inferentially.

Belief in the idiopathic variety of pleuritic effusion is not held by many writers of note. The results of investigators in this kind of work—viz., A. Fränkel, E. Levy, Prudden, Koplick, Netter, and Weichselbaum—show the pyogenous bacterium most frequently found in pyothorax to be the streptococcus, and Netter has shown a pneumococcic may cause a staphylococcic empyema.

Pel\* reports three cases, two after pneumonia, the third of doubtful origin; and Bouveret† reports one case—all of which were proven by aspiration to be empyema, and all were absorbed.

In our case therefore it is possible that the absorption would have taken place.

*Did aspiration hasten or retard recovery?* The peculiar effect laparotomy has on a tubercular peritonitis might explain the early recovery of our case. The aspiration did relieve the dyspnea and thereby improved the general condition, and at the same time removed two ounces of septic material; so that on the whole we incline to the view that recovery was accelerated by our procedure.

*When is the proper time to aspirate in pleuritic effusions?* Hippocrates advised the fifteenth day; Bowditch three weeks. Bernier, and later Fox, by a careful comparative study of a large number of cases, found that the mortality was doubled following the introduction of early thoracocentesis. Dr. Washburne's rule in acute pleurisy (cases of pleurisy caused by the pneumococcus, *Med.-Chir. Soc. Trans.*, 1894, p. 179) is, "Let alone for two or three weeks." This is concurred in by Sir Thos. Watson, Fräntzel, de Haviland Hall, Gerhardt, and Clifford Allbutt, who advise withdrawal of fluid, if absorption does not take place in this length of time. "But it is better to be too soon than too late, for it is impossible to tell the amount of internal pressure by external signs, and the relief of this pressure may be of the greatest importance, the policy of delay serving no good purpose."‡

\* *Zschr. für Klin. Med.*, Berlin, 1890, xvii, p. 199.

† "Traité de l'Empyème," Paris, 1888.

‡ Stephen Paget.

\* Surgery of the Chest.

In spite of the array of authorities quoted we think the marked dyspnea of our case justified the early aspiration, and the result proved the correctness of our reasoning.

*The choice of methods—incision or aspiration?* The balance of advantages is in favor of aspiration, as incision can always be done if aspiration is unsuccessful (Paget).

*The best point for the introduction of the trocar?* Walther (*Annals of Surgery*, December, 1889, 455) says: "In point of election for incision by anatomical research the eighth interspace posteriorly is recommended in the largest number of cases. Lay the patient on the sound side, seek the ninth rib, and make the incision along its upper edge—three fingers' breadth anterior to the spinous process of the vertebra. The intercostal nerves and arteries in this operation are not injured." Mr. Goodlee's rule is "opposite the ninth rib just outside the angle of the scapula." "The opening in the chest-wall should be made in the midaxillary line at the level of the sixth rib, as this is the part to which the lung last expands."\* To lessen the liability of infection the following is of value: "The skin must be dislodged before introducing the needle, so that the stitch-canal in the skin and the one in the underlying tissues shall not be in line."† Experience has taught us that the axillary line, high enough to clear and prevent the bulging of the diaphragm, is very satisfactory, and also allows the patient to lie on the back or in the semirecumbent position during the operation.

*Dangers of Aspiration.*—The heart, diaphragm, lung, or abdominal organs may be wounded. The great Laennec himself had this accident happen to him. Sudden death and pleuritic epilepsy should be included as among the dangers. Fräntzel showed post mortem a case of hemorrhage into the pleural cavity following a negative exploratory puncture. Paget reports a fatal case from injury to the lung.

*Should the fluid be withdrawn rapidly or slowly?* If the amount is small it may be withdrawn rapidly, but if present in large quantity, all writers on the subject agree that slow withdrawal is safer.

*Is tuberculosis a contraindication for operative interference?* Writers differ. Kluster,‡ who has reported 109 operations for em-

pyema, thirty-one having tuberculosis, cured nine cases, improved nine, and thirteen died. He claims that the great relief afforded justifies the operation. Still a man may live for years with a tubercular empyema, or a latent tuberculosis of the lungs might be lighted up by an operation for empyema. Activity of the circulation in the lung tissue was supposed to be a protection against tubercular affections, but this is questioned now, for "Laennec in the early history of systematic study of tubercular affections of the lungs asserted his belief that stasis was incompatible with the progress of pulmonary tubercular affections; and Bier's observations, supported by those of Mikulicz and Miller in the treatment of tubercular joint-disease, by means of a constricting bandage so placed as to produce venous congestion of the parts, go far towards confirming the views of Laennec in this particular."\*

Whether operation in a selected case is justified must always depend on the personal equation, as no hard and fast rule can be laid down.

If the case be simply pleural effusion, which is not causing discomfort, then *laissez faire*—let well enough alone; also, if there be lung tuberculosis, hesitate before operation. But if the pressure signs are grave then aspirate in effusion, but in an empyema operate with a view of obliteration of the cavity, by a simple resection, a Schede or Delorme flap operation.

#### SUCCESS OF ARGONIN IN GONORRHEA.

Basing his assertions on the effects obtained in thirty-three cases of more or less chronic gonorrhea, none recent, ZYDLOVITSCH (*Gazette Médicale de Liege*, Aug. 5, 1897) recommends argonin as superior to all other medication for this purpose. It causes the rapid disappearance of the gonococci; does not aggravate the pathologic process, but attenuates it. It should be continued until no gonococci are discovered in the course of three to five examinations at three-day intervals. The argonin is injected into the anterior portion of the urethra in a 1½-per-cent. solution five times a day, and retained five minutes. The posterior portion is treated with a 2.5-per-cent. solution instilled; the consecutive catarrh with astringents.—*Journal of the American Medical Association*, Sept. 18, 1897.

\* Hutton, *Lancet*, Feb. 6, 1897.

† Beck, *Manual on Surgical Asepsis*, chap. xiv.

‡ *Deut. Med. Woch.*, Nos. 10-13, 1889.

\* Fowler.

# The Therapeutic Gazette

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## Leading Articles.

### THE VALUE OF ANTIPYRIN IN LABOR.

The very extraordinary number of ailments in which antipyrin has proved itself useful leads one on one hand to believe all that can be said in its favor, and on the other to doubt the possibility of its proving efficacious in any additional conditions to those in which we already employ it. It is worthy of note, however, that very shortly after antipyrin was first brought forward as a pain reliever several clinicians suggested its use for the purpose of relieving the pains of labor. It is not surprising, therefore, to find that it has been largely used, and that we are now in a position to decide as to its pain-relieving powers in the parturient state. Increasing knowledge of this drug has certainly shown that whatever power for good it has is confined to practically one stage of delivery. It seems hardly necessary to emphasize the fact that it can under no circumstances supplant the ordinary anesthetics, and it must be remembered that the coal-tar products prove themselves useful in those forms of pain which may be called nerve-lesions, and are

usually practically powerless in the pains of inflammatory processes. According to the studies of Misrachi it is a useless remedy for the pains of a perfectly normal labor, but finds its chief usefulness in those cases where the pains are so excessive as to reflexly interfere with the proper uterine contractions. In this condition he asserts that it is most efficient. Misrachi decides, too, that it is indicated in tedious labor when the pains are severe. He also believes that it is useful when the liquor amnii has been discharged too early and where there is rigidity of the os. In regard to the second stage of labor Misrachi concludes that antipyrin is useless. There is evidence, however, that antipyrin has considerable ability to relieve the so-called after-pains. It is also seemingly a fact that antipyrin may be used with some success for the purpose of quieting a tendency to the development of pains before the full term has been reached. If it is intended to use antipyrin for the purpose of arresting a threatened miscarriage, then its dose must be very large—as much as thirty or forty grains given in two or three doses of fifteen grains each at half-hour or hour intervals.

### THE USE OF FULL DOSES OF NUX VOMICA IN THE TREATMENT OF INSUFFICIENCY OF THE OCULAR MUSCLES.

Whether the reader of this editorial believes with Stevens of New York and other ophthalmologists that insufficiencies of the ocular muscles are capable of producing grave secondary nervous manifestations, or whether he belongs to that school which casts grave doubt upon these views, matters little. Every ophthalmologist and many general practitioners recognize the fact that insufficiency of the ocular muscles produces much headache and other discomforts, and while it is true that the proper glassing of these patients gives them great relief, either at once or in time, it is also a fact that the physician or ophthalmologist who administers drugs properly can materially aid the patient on his road toward recovery. In this connection it is of interest to note the value of full doses of nux vomica. There can be no doubt, in patients who have used their eyes excessively, at the same time suffering from insufficiencies of the ocular muscles, that rapidly ascending doses of this drug give them very extraordinary relief, particularly if at the same time there is given with it

some arsenic, or if anemia is marked some easily assimilated preparation of iron.

In the THERAPEUTIC GAZETTE for 1886 Dr. Musser, of Philadelphia, published an interesting clinical paper in which his experiments seemed to prove that the dosage of nux vomica was in inverse proportion to the age of the patient, or in other words that the susceptibility increased with the age; and this is of practical importance to ophthalmologists who desire to administer nux vomica for the purpose named, because it shows that children, who frequently suffer from ocular insufficiencies, can be given full doses of nux vomica with safety. One of Musser's patients took 200 drops three times a day, and he also found between the ages of fifteen and forty that forty-five drops three times a day were generally well borne. Because of these studies de Schweinitz began using full doses of tincture of nux vomica for ocular insufficiency with surprising results, as long ago reported in the *Medical News*; and he also found that he got much better results from administering nux vomica in one of its official preparations than he did if he gave strychnine, as this single alkaloid of nux vomica did not seem to possess the therapeutic advantages of the comparatively crude preparation, perhaps because the patient was deprived of the brucine, which may be therapeutically active in failure of the ocular muscles. As pointed out by de Schweinitz, and as thoroughly endorsed by subsequent observation, it is to be remembered that full doses of nux vomica can only be given to such patients if there are no evidences whatever of retinitis or retinal irritability characterized by dread of light and other symptoms. If it is given to such patients the headache and photophobia will become worse, and the patient instead of improving under the nux vomica will complain bitterly of the exaggeration of his symptoms. It is important to remember that while moderate doses, may be given at first for this condition, the best therapeutic results are only to be obtained by the use of this drug in ascending doses, in much the same way that we give increasing amounts of Fowler's solution in chorea.

#### THE TREATMENT OF TETANUS BY ANTITETANIC SERUM.

In this number of the THERAPEUTIC GAZETTE are reported two cases of tetanus successfully treated by antitetanic serum.

Considering the salient features of these

cases, we find that in the one treated by Dr. Foster the period of incubation was seven days; that the spasms beginning in the masseter and temporal muscles in the next four days had become general; that there was a slight fever, and that the pulse was continually hurried and ran as high as 130; that amelioration of the spasms was not noticed until the second day after the administration of the first dose of antitetanic serum, in the meantime forty centimeters of this drug having been administered hypodermically; that on the following day the spasms were even more marked, occurring every one or two minutes and lasting three or four minutes at a time; and that after this, the serum being continued, improvement was progressive, but the pulse remained hurried for several days.

In Dr. Coffin's case the period of incubation was four days. In the next six days the spasms had become universal and recurred every minute and a half. The highest temperature was  $105\frac{1}{2}^{\circ}$ , at the time the patient was received into the hospital, and the highest pulse-rate 128. This case distinctly belonged to the fulminant type. He received 1800 cubic centimeters of antitetanic serum hypodermically, together with sedatives during the convulsive periods. His convalescence in so far as the vital phenomena were concerned was uninterrupted from the time of beginning the serum treatment.

Both of these cases are of peculiar value in establishing the worth of the modern method of treating tetanus. It is but recently that Kanthack, after an exhaustive review of the literature of the entire subject and extensive tabulation of the cases reported up to the period of the publication of his paper, arrived at the conclusion that serum treatment has not actually changed the prognosis in acute and serious cases of tetanus. In milder cases he acknowledges that it may lessen the spasms, the pain, and distress, and may reduce mortality. Indeed it has been claimed that there is not a single well authenticated case of acute traumatic tetanus developed within a week which has been successfully treated by the antitetanic injections. Richter as a result of statistical study states that ninety-five per cent. of all cases with an incubation period of less than ten days die when treated by ordinary methods, and that out of a collection of 717 cases of all kinds eighty per cent. died. Kanthack from his studies found that of the cases treated by Tizzoni's antitoxin 25.8 per cent. died, but this calculation must be received with some

allowance since it concerns only the published cases, and these were not analyzed carefully.

Weir of twenty cases collected, including one observed by himself, reports four deaths, a mortality of twenty per cent. The quantity of serum injected was from thirty to fifty cubic centimeters; the total quantity in any individual case not exceeding 200 cubic centimeters.

Vaillard insists upon the inadequacy of antitoxin in any but the chronic cases of tetanus—*i.e.*, those which spontaneously recover. He and practically all observers, among whom probably Nocard is the most conspicuous, are, however, united in the belief as to the protective value of injections.

It must be admitted that the modern treatment of tetanus is still on trial, but the accumulating evidence is steadily corroborating the inferences gained from bacteriological and laboratory research. These inferences are that man can be protected from tetanus by preventive injection, and by comparatively small doses of the antitoxin; that the toxin of tetanus can be neutralized even after it has been absorbed into the system and has manifested its effects, but that this requires large, often enormous, doses of the antitoxin.

The two cases reported in the present number of the THERAPEUTIC GAZETTE are certainly among the most convincing of any which have yet appeared in medical literature. They both belong to the virulent and almost invariably fatal type of the disease. One, and the more severe of the two, received a very large dose of the antitetanic serum; neither exhibited the slightest toxic symptoms from these injections, unless the rapid pulse could be attributed to them, but this is such a constant accompaniment of tetanus treated by other means that it almost certainly was due to the effect of the toxin and not to the antidote administered. The injections were not followed by suppuration or local pain, and the amelioration of the symptoms was steady and progressive when the system was once brought thoroughly under the influence of the medication. Of course it cannot positively be said that either or both of these cases would have necessarily died under another method of treatment, but the evidence is strongly in this direction, and it will need but a few more records of the kind to firmly establish the value of the treatment. It cannot be expected to save all cases. It will infallibly happen that before the disease is treated at all in a certain percentage the patients have already received into the system a fatal dose

of toxin. We can, however, look forward now with some decided hope to lessening the mortality to probably twenty per cent., and perhaps much lower than this.

The method of preparing the antitoxic serum which was used (Parke, Davis & Co.) was as follows:

The serum is produced in essentially the same manner as is the antidiphtheritic serum. The horse, however, is relatively insusceptible to diphtheria and very susceptible to tetanus. From this it results that the immunization is more difficult, more horses are lost in the attempt, and to produce a high degree of immunity requires a much longer time in the case of the antitetanic serum. The tetanus toxin, which is produced by the tetanus germs growing in bouillon, has added to it an amount of preservative sufficient to prevent decomposition. It is usually allowed to stand for a week and then filtered through a Chamberland filter. The strength of the toxin is then measured on guinea-pigs. Knowing the strength of the toxin, and having the temperature record of the horse from the last injection, it is easy enough to figure out the probable amount of this toxin which the animal will stand at the next injection.

Tetanus antitoxin is, as an experimental remedy at least, much more potent than the diphtheria antitoxin—that is to say, a given amount of the immunized serum will protect a greater weight of guinea-pig against the tenfold fatal dose of toxin than will be the case with the diphtheria antitoxin. The reason for this perhaps lies in the fact that the strength of an antitoxin is in some measure proportioned to the amount of toxin that the horse can be gotten accustomed to. In the case of diphtheria immunization a point is reached after a while when the mere bulk of the liquid to be injected prohibits any advance. It is rare that we can obtain a diphtheria toxin that will kill half-grown guinea-pigs in less than 0.01 cubic centimeter, whereas it is easy to produce a tetanus toxin that will kill in one-seventh to one-tenth of this amount. Having a toxin in such concentration the amount that can be subcutaneously injected into the horse is, of course, very much larger than in the case of the diphtheria poison.

Parke, Davis & Co. have bottled their tetanus antitoxin in one-ounce packages, recommending one-third of this amount to be given at a time in an average case of tetanus, the injections to be repeated until the whole amount is used.

## Reports on Therapeutic Progress

### A VISIT TO BAD NAUHEIM, WITH THE PURPOSE OF INVESTIGATING THE "SCHOTT TREATMENT" FOR CHRONIC HEART DISEASE.

In the *Johns Hopkins Hospital Bulletin* for May, 1897, CAMAC tells us that last November, at Dr. Osler's suggestion, he undertook to introduce into the hospital the Schott treatment of exercises and medicated baths for cases of chronic heart disease. After consulting the bibliography of the subject, several cases were placed under treatment according to the instructions contained therein. At once, however, they were confronted by numerous questions, answers to which it seemed quite impossible to find in any of the references at hand. Although the literature dealt at length with changes in the cardiac outline, the position of the cardiac maximum impulse and the respiration, the theories upon which the beneficial effects were based, etc., no answer to such practical questions as the following were given:

1. Is any massage to be employed during or after the bath?
2. What drugs are to be employed during treatment, and what drugs are contraindicated?
3. Should the baths and exercises be given together, or, if separately, which should precede?
4. Are stimulants to be administered before or after the bath?
5. What should be the diet of the patient?
6. Are cases of hydrothorax or ascites to be tapped?

Finding many of these questions unanswered, it was with considerable interest that the writer received Dr. Osler's suggestion to visit Bad Nauheim, the home of the treatment and of Dr. Schott, its originator.

Nauheim is in the Grand Duchy of Hesse, three-quarters of an hour from Frankfurt-on-the-Main and two hours from Homburg. Nearly in the center of the northeastern half of what geologists have called the Mayence Basin (Mainzerbecken), Frankfurt is located, and at the eastern slope of the Johannisberg, the last spur of the Taunus mountains, is situated Bad Nauheim. As one approaches Nauheim he is struck by the great trestlework structures in the midst of the fields. On examining these more closely they are found to be frame structures about 200 to 300 feet long and about 50 feet high, supporting

switches closely stacked one upon another. The salt waters are raised to the top of these trestles and allowed to filter through the interlacing switches, upon which, by the evaporation of the water, the salt is deposited. These switches are removed every few months or so, the salt broken from the branches, ground and refined, and serves as the commercial salt of the surrounding country. The most beautiful forms result from these deposits, and by the clever devices of the natives the most grotesque figures are produced.

An estimation of the commercial value of these works to-day may be made by the value put upon them in 1806, when they were considered by Napoleon an adequate reward to Marshal Louis Nicolas Davout (erroneously written Davoust) for his services in the French army; and again in 1866, when they fell to Hesse-Darmstadt in exchange for Homburg. Since 1834 the reputation of Nauheim for the efficacy of its springs has been steadily coming to the notice of Europeans. Frankfurt, up to this time forming the center and battlefield of many of the German disputes with France, rendered Nauheim scarcely a fit place for invalids.

It was therefore not until 1834 that we begin to hear of Nauheim as a resort for invalids. It was not until 1860, however, that Dr. Beneke, of Marburg, considered scientifically the value of the medicated bath treatment. From 1859 to 1870 several articles by Beneke upon the waters of Nauheim appeared in the *Berliner Klinische Wochenschrift*. From 1870 to 1890 August and Theodore Schott and J. Groedel were frequent contributors on this subject to the *Berliner Klinische Wochenschrift*, also to the *Deutsche Medicinal-Zeitung*. August Schott died, but his brother Theodore continued the work, and published in 1892 an article in the *Lancet*, which caused little comment.

In 1894 W. Bezley Thorn became an ardent advocate of the bath treatment, and published an article in the *Lancet* and also a small book in which he described quite fully the baths and exercises. With the appearance of this systematic little book up to the present the treatment has been very popular in England. Nauheim, its waters, and the resistance exercises, have been frequent topics in English and German medical journals. In France and America the treatment has as yet received no very thorough trial. It is interesting to note here the increase in the number

of visitors from 1871 to 1895. In 1871 the visitors numbered 5249; in 1891, 9244; 1892, 10,272; 1893, 10,384; 1894, 11,681; 1895, 14,136.

Although the season was over when the writer visited Bad Nauheim, he had an opportunity of seeing the baths through the courtesy of Dr. Hirsch, Dr. Schott's assistant, who showed him over the grounds and described very fully the details of the treatment. It can best be described in Dr. Schott's own words: "The springs of Nauheim may be divided into two classes, those suitable for bathing and those suitable for drinking. Together with other ingredients the bath waters contain from two to three per cent. of sodium chloride, from two to three per 1000 of calcium chloride, various salts of iron; above all, very large amounts of carbonic acid. Coming from the depths of the earth, they have a temperature of 82° to 95° F. Springing from a depth of 180 meters, supercharged with carbonic acid gas by the pressure to which they are subjected, the waters gush far above the surface; for example, Spring No. 12 rises to a height of fifty-six feet and falls again in white seething masses." This is a most striking condition; so richly charged with carbonic acid are these waters that the reservoir into which they fall has the appearance of a great mass of clouds. "Conveyed directly from the main by means of subterranean pipes, these waters charged with their natural gas are allowed to completely cover the body of the bather. Little bubbles of gas are seen to immediately cover the whole surface of the body. The waters of Springs Nos. 7 and 12 escape from a pressure of from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  atmospheres, and afford a surf bath which compares accurately with the strongest surf bath of sea water."

The first question which arose when this matter came to be scientifically investigated was, How do these baths and exercises act? That they were very efficacious in the relief of chronic cardiac disease had been demonstrated for some years back, but their action had never been investigated. There are several explanations given; that given by Dr. Schott is in the following words:

"Physiological research of recent years seems to show that the salts held in solution in water externally applied have no direct action on the system; the light and mobile molecules of the gas, on the other hand, pass rapidly through the skin to the corium with its rich supply of blood. We must look upon the salts held in solution as passing by imbi-

bition through the outermost layer of the epidermis, and so acting on the terminal nerves of the skin as to exert a reflex action on the internal organs. The warm baths act in their own peculiar manner on the organism as a whole; increased tissue change seems to be induced by an increase of the oxygen absorbing power of the cells, and hence follows the sense of the need of rest and sleep as an immediate consequence of the bath, as well as influences speedily brought to bear on the nervous system as a whole. Excessive bathing induces an excitable state of the nervous system, sleeplessness, loss of appetite, and consequent loss of strength. The principal changes which ensue in the system and in the function of the special organs are that the heart beats more slowly and strongly, the pulse becomes full and increases in force, and the blood-pressure may rise to the extent of twenty to thirty millimeters of mercury; the breathing becomes regular and quiet, and the capacity of the lungs increased.

"While the patient is in the bath he becomes flushed and a feeling of comfort and warmth ensues, which may even rise to one of an agreeable intoxicating character. Almost invariably the excretion of urine is increased; exudates in the body cavities, especially from the peritoneum, pericardium, and pleura, are absorbed. This latter action and that on the valves of the heart can only be explained on the theory of reflex action produced by influences acting upon the terminal nerves."

Another explanation is that given by Dr. Bezley Thorn, that there is a dilatation of the muscular arteries and afterwards those of the skin, and thus there is a relief of the heart from backward pressure. In Lauder Brunton's massage experiments he demonstrated that more blood flows through the massaged part and that blood-pressure at first rises and then falls, and that on the conclusion of massage more blood collects in the massaged part. These experiments were confirmed by Dr. Oliver. T. Grainger Stewart concluded that the passive exercises improve the circulation of lymph within the tissues, and bring a larger volume of blood into the muscles. He quotes the conclusion of Ludwig to the effect that the capacity of muscles for blood is equal to the combined capacities of the internal organs and the skin. If therefore this be so and Dr. Lauder Brunton's experiments be correct, the increased amount of blood in the muscles must indicate a relief of the congestion in the internal organs.

In Dr. Schott's explanation there are two actions: (1) A cutaneous excitation induced by the mineral and gaseous constituents; and (2) a more prolonged stimulation of the sensory nerves excited by imbibition into the superficial layer of the corium. The salt producing this excitation is the calcium chloride.

Whatever the explanation of their action may be, two points seem established: (1) that the apex beat alters its position; (2) that the degree of cardiac dullness is diminished. These two facts, especially the first one, were most strikingly obvious in their first cases, and both facts were most forcibly demonstrated to the writer in the cases which he saw abroad. One can scarcely credit the results published until he has seen for himself these marked changes.

To quote Dr. Schott again: "The methods of administering the baths are of the greatest importance. It is advisable to begin with a one-per-cent. salt bath containing  $\frac{1}{100}$  of chloride of calcium, freed from gas and at temperatures varying from 92° to 95° F., the bath lasting from six to eight minutes. The course of treatment should be interrupted by frequent intervals of one day. The temperature of the bath should, if possible, be gradually lowered, while the proportion of solids in solution and the duration of the bath are gradually increased. At a later stage it is permissible to proceed to the baths containing carbonic acid. The temperature may then be rapidly lowered, especially if chloride of calcium be added in order to increase the mineral strength of the bath."

The course consists of six baths, the first and the second being simply with salts—calcium chloride and the sodium chloride; the third, fourth, fifth and sixth contain carbonic acid as well as these salts.

The preparation of the baths artificially was taken up especially by W. Bezley Thorn in London in 1895, since which time Ewart, Bowles and Broadbent have employed them in London, Moeller in Brussels, and Heine-mann in New York. Following the analysis of Nauheim waters made by the chemist Fresenius of Wiesbaden, the artificial baths may be readily prepared. We have now packages made up at the pharmacy, each containing the proportion of salts for the different strengths of the baths, each package corresponding to forty gallons of water, which is just about enough to entirely immerse the body. The baths of different strengths are given to appropriate cases.

The author has not attempted in this note in any way to speak for or against the treatment nor to report cases. He has thought it best for the present simply to give an outline of the trip to Bad Nauheim, the purpose of which was to see the effects of the treatment and to learn something about it with the object of trying it in the hospital at Johns Hopkins. They have now five cases under treatment, and the writer trusts by keeping careful records of the effects of these baths and exercises that he will be able to pass judgment upon the weak as well as the strong points of the method. Only by a careful trial can one place himself in a position either to recommend or to condemn the treatment.

In regard to the exercises, which are worthy of a lengthy description, something must be said. They consist of nineteen movements, each movement restrained by the very lightest resistance. This part of the treatment, under the supervision of a physician, is entrusted to the nurses, to whom careful instructions have been given as to the method of carrying it out.

The following are the instructions laid down for the nurses in the administration of the bath:

1. Always understand clearly from the doctor the following points: (1) Strength of the bath to be given; (2) temperature of the bath; (3) length of time patient is to remain in the bath. *Note.*—Give the bath in the morning unless otherwise ordered.

2. Observe carefully the chart and note the points therein called for. (1) Give bath on an empty stomach; (2) note the time from the moment patient is immersed to that when he is taken out; (3) allow the patient to make as little exertion as possible—assist him in every way; (4) a sheet may be drawn over the tub, but not around the patient; (5) be sure the entire body is immersed; (6) keep the finger on the pulse during the entire time the patient is in the bath.

Cyanosis (bluing of the face), dyspnea (difficult breathing), apnea (gasping), inappreciable pulse: On the appearance of any of these, take the patient out of the bath immediately, put him to bed, and keep him as quiet as possible. Friction while in the bath is not necessary, but if the fingers and toes become bluish the extremities may be rubbed slightly towards the trunk. Friction should be cautiously employed; when the patient is out of the tub rub him to a glow; give him a glass of milk or cup of bouillon and allow him to rest for an hour.



As to diet, small quantity every four hours. Meat—boiled chicken, mutton chops; eggs, two a day; oysters, raw or panned; vegetables—peas, beans, lettuce; liquids—beef-tea, bouillon, cocoa, lemonade, milk. *Note.*—Never give more than four ounces of fluid at a time; should be sipped. Wine—Port, Rhine, sherry, brandy, drachm to half-ounce.

*Note.*—Something light (cocoa and toast) should be taken one-half hour before the bath; something light and hot (bouillon, milk punch, and toasted crackers) should be taken directly after the bath. If the heart's action is poor, sherry, brandy or port wine may be given after the bath. Last meal to be taken three hours before retiring.

Bath No. 1: Sodium chloride, 4 pounds; cal. chlor., 6 ounces.

Bath No. 2: Sodium chloride, 5 pounds; cal. chlor., 8 ounces.

Bath No. 3: Sodium chloride, 6 pounds; cal. chlor., 10 ounces; sodium bicarb., 6 ounces; HCl, 7 ounces.

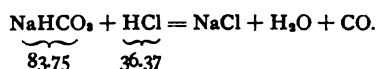
Bath No. 4: Sodium chloride, 7 pounds; cal. chlor., 10 ounces; sodium bicarb., 8 ounces; HCl, 12 ounces.

Bath No. 5: Sodium chloride, 9 pounds; cal. chlor., 11 ounces; sodium bicarb., 1 pound; HCl, 1 pound.

Bath No. 6: Sodium chloride, 11 pounds; cal. chlor., 12 ounces; sodium bicarb., 1 pound; HCl, 2 pounds.

Each bath consists of forty gallons of water.

*Note.*—By using a little more  $\text{NaHCO}_3$  than is required to take up the HCl, the metal tubs may be employed without doing them any harm.



The exercises are called by Dr. Schott "Widerstandgymnastik," or resistance gymnastics, and consist in slow movements executed by the patient and resisted by the physician or operator. A short interval is allowed after each movement, during which the patient sits down. The exertion employed must be very small, and should cause no increase in respiratory movements, flushing, or pallor. The patient should be loosely and lightly clothed, and instructed to breathe quietly. The resistance made should be of such a kind that the patient may always feel himself easily the master. The operator must not grasp or in any way constrict the limb, but should oppose by the hand held flatly. The movements are nineteen in number.

*Arm.* (1) Arms extended in front of body on a level with shoulder, hands meeting; arms carried out until in line, and brought back to original position. (2) Arms hanging at sides, palms forwards; arms flexed at elbow until tips of fingers touch shoulder; back to original position; one arm only moved at a time. (3) Arms down, palms forward, arms carried outwards and upwards until thumbs meet over head; back to original position; one arm only moved at a time. Not always advisable. (4) Hands in front of abdomen, fingers flexed so that the second phalanges touch those of opposite hand; arms raised until hands rest on top of head; back to original position. (5) Arms down, palms against thighs, arms raised in parallel planes as high as possible; back to original position.

*Trunk.* (6) Trunk flexed on hips; return to original position. Resist with both hands. (7) Trunk rotated to left, to right; return to original position. Resist with both hands. (8) Trunk flexed laterally. Resist with both hands. (9) As No. 1, but fists clenched. Resist with both hands. (10) As No. 2, but fist clenched.

*Large Arm Movements.* (11) Arms down, palms against thighs, each in turn raised forwards and upwards until arm is alongside of ear, then turned outward, and arm descends backwards. Not always safe. (12) Arms down, palms to thighs, both together moved backward in parallel planes as far as possible without bending the trunk forwards. Not always safe.

*Legs.* (13) Thighs in turn flexed on trunk, opposite hand resting on chair. (14) Lower extremities in turn extended fully, and bent on trunk forward and backward to extreme limits of movement, opposite hand resting on chair. (15) Legs in turn flexed on thigh, both hands on chair. (16) Feet together, lower extremities in turn abducted as far as possible and brought back to original position; opposite hand on chair.

*Hands and Feet.* (17) The arms, extended horizontally outward, are rotated from the shoulder-joint to the extreme limits forwards and backwards. (18) The hands in turn are extended and flexed on the forearm to extreme limits, and brought back in line with arm. Resist with both hands. (19) The feet in turn are flexed and extended to extreme limits, and then brought back to their natural position. Resist with both hands.

The writer has arranged these in five groups, as in this way they may be more readily committed to memory.

1. Each movement to be performed slowly and evenly at a uniform rate.

2. No movement to be repeated twice in succession in the same limb or group of muscles.

3. Each single or combined movement to be followed by interval of rest. Count five.

4. Patient's breathing should not be accelerated. Avoid (1) dilatation of the alæ nasi (dilating of nostrils); (2) drawing of corners of mouth; (3) duskiness and pallor of cheeks and lips; (4) yawning; (5) sweating; (6) palpitation.

If any of the above, make a complete interval, or if excessive, stop the exercises for the day.

5. Direct the patient to breathe regularly. If he holds his breath make him count in a whisper.

6. Do not constrict the part which is being moved.

#### SOME RECENT ADDITIONS TO CUTANEOUS THERAPEUTICS.

DUHRING (*American Journal of the Medical Sciences*, April, 1897) recommends in cases of eczema of the forehead, where there is considerable thickening of the skin and exaggeration of the natural folds and lines, with hyperesthesia, the use of camphor as follows:

- ℞ Camphoræ,  $\frac{1}{4}$  drachm;  
Emplast. plumbi, 3 drachms;  
Vaselin, 3 drachms;  
Ol. olivæ, 1 drachm.

M.

The amount of camphor may be lessened should it cause burning sensations. When heat and itching are prominent symptoms in eczema of the face, an ointment of acetanilid, forty to eighty grains in an ounce of cold cream, from its anesthetic and cooling properties, serves to allay these sensations. In several desperate cases of eczema of the anus he has obtained much ease from the distressing burning and itching complained of by the use of:

- ℞ Sulph. ppt., 40 grains;  
Naphthol., 20 grains;  
Morphine hydrochlor., 2 grains;  
Zinci carbonat., 60 grains;  
Ceratum galeni, 480 grains.

M.

Unna (*British Medical Journal*, London, Oct. 17, 1896) suggested, under the name gelanthum, a solution of gelatin and tragacanth as a watery varnish, but the method of preparing it was tedious. Skinner (*British Journal of Dermatology* London, February

and May, 1897) has simplified it. Exactly the same result, he says, can be attained by swelling tragacanth and gelatin with water separately on a steam-bath for twenty-four hours, pressing through muslin while still hot, mixing, adding some glycerin, placing in the bath again for about an hour, straining, then making up to the required bulk with water in which some thymol has been dissolved to preserve the compound.

- ℞ Gum tragacanth,  $2\frac{1}{4}$  drachms;  
Gelatin. opt., 2 drachms;  
Glycerini, 6 drachms;  
Thymol,  $\frac{1}{4}$  grain;  
Aq. dest., q. s.

Place the tragacanth and gelatin each in ten ounces of water in covered jars, and make the final quantity up to twelve ounces with water.

This yields a uniform semiliquid preparation. It may be applied as an ordinary ointment in the first place, afterwards being painted on with a camel's-hair brush, thus giving a protective film, which dries in from two to ten minutes, and is plastic, protective, and emollient. Another useful "film" is obtained when glycerin of starch is smeared thinly on the skin and allowed to dry on. The film produced is comparable to one formed by the purest gelatin, and is not so obtrusive. It is essential that it be allowed to become dry instead of rubbing it off the skin with a towel. An acetone collodion containing a little camphor is a very serviceable one, though not absolutely transparent: thus pyroxyline 10 grains, camphor 3 grains, acetone 1 ounce. Oil of cade or the tars generally mix best with acetone collodion, ichthyol with that made with ether and alcohol. Skinner also notes that calamine as ordinarily met with is very unsatisfactory, not only in its color, but also in its composition. If a good oxide of zinc be exclusively used for lotions or powders, reliance can be placed that the best and that most free from grittiness is provided. If boric acid is prescribed, the pulvis subtilissimus should be specified, and care should be taken that all soap is washed off the skin, as it is soluble, and will decompose any left on, which may cause the irritation sometimes complained of.

Schütz of Frankfort (*Arch. für Dermat. und Syph.*, Wien, 1897, heft 1), finding the severe treatment of lupus erythematosus not only led to irritation and aggravation of the disease, but that cases improved when let alone, and mild, non-irritating ointments applied, has tried weak arsenical solutions locally with success: Liquor arsenicalis, 4.0; aq. dest., 20.0-30.0; chloroformi gutt. 2. This

solution is painted on night and morning and allowed to dry. On the first or second day nothing is observed on the parts painted; on the fourth to sixth, slight swelling, increased redness, and tenderness appear. The further application is discontinued, and the part powdered. In four to eight days the swelling subsides, the part grows pale, and scales. When this has ceased the painting is resumed; in six or eight weeks there is remarkable improvement, and in ten to twelve the lupus is generally cured. No scars remain, except where there has been previous atrophy.—*Edinburgh Medical Journal*, July, 1897.

#### ICHTHYOL IN SMALLPOX.

KOL CASSENKO (*Vratch*, No. 13, 1897) recommends ichthyol as a local application in variola. He has employed it in ten cases (six hospital and four private). Of these eight recovered and two died, the latter being hopeless when admitted. In two of those which recovered the patients were the subjects of advanced chronic disease previous to the attack. The remedy was used as an ointment made as follows: Ichthyol 10, fat 60, lanolin 20; the latter, however, may be, according to the individual case, replaced by chloroform, olive oil, glycerin, etc. The ointment was rubbed in three times a day as soon as the papules became visible. It also proved very beneficial when applied twice a day to the upper part of the trunk in the prodromal stage. As a result there was little or no tenderness at the seats of eruption, the temperature never rose high, and desquamation was almost completed in three or four days from the maturation of the eruption (half the usual duration). In several severe cases where this treatment had been adopted from the very beginning there was no inflammation of the skin and subcutaneous tissue, and the course of the disease was, on the whole, mild in character. No toxic symptoms resulted from the use of the remedy even in children. Rozdestwensky, to whom the author refers in conclusion, has, at the latter's suggestion, tried this mode of treatment in a series of hospital cases and obtained excellent results, which are not yet published.—*British Medical Journal*, June 26, 1897.

#### THE ACTIVE PRINCIPLE OF CASTOR OIL.

Many years ago Buchheim stated that ricinoleic acid is the purgative principle in castor oil, while other observers maintain

that the true active principle is a small quantity of a body derived from the seeds, and held in solution in the oil. The question possesses considerable practical interest, because, if the former view be correct, we cannot hope to diminish the necessary dose, whereas if the latter view be the correct one, and we were able to obtain the active principle in a state of purity, a very small dose of a probably tasteless substance would suffice to produce purgation. In 1890 Meyer strove to show (*Arch. für Exper. Path. und Pharmacol.*, Leipzig, bd. xxviii) that ricinoleic acid and its salts were as active as castor oil, but there is always a suspicion that his preparations contained a small amount of the hypothetical active principle, and that their activity was due to this. He has again returned to the subject (*Arch. für Exper. Path. und Pharmacol.*, Leipzig, 1897, bd. xxxviii), and, after showing that castor oil does not lose its activity by being heated to 300° C., or by treatment with dry hydrochloric acid, by boiling with caustic potash, or by other methods calculated to destroy any known active principle, he comes to the conclusion that ricinoleic acid is the only active substance present in the oil, and that it develops its specific action in the intestine by being saponified and thereby rendered soluble. Ricinoleic acid has, however, no specially irritating properties, and it is difficult to explain its action as a purgative.—*Edinburgh Medical Journal*, July, 1897.

#### ON THE TREATMENT OF DILATED STOMACH.

In *Treatment* of June 24, 1897, WYNTER expresses the view that the treatment of such cases may be divided into the removal of those causes which lead to and maintain dilatation, and the adoption of such means as we possess for promoting the contraction of the organ after dilatation has already occurred.

Among the more common causes of dilatation of the stomach may be mentioned the introduction of excessive quantities of food or drink, of which instances are afforded by vegetable feeders, and those frequent cases which arise among German students from their practise of swallowing many liters of weak beer at their "Kneipen;" the ingestion of food which by its nature or through imperfect mastication is slow of solution, this being still further delayed by feebleness of the digestive juices, by sleep, or by undue activity immediately after meals. The absence of

opposing molars, hurry in taking food, and irregularity in meals, or their following too closely upon one another, are frequent sources of the accumulation of rancid and fermenting residues in the stomach, and ultimate dilatation.

The naturally suggested remedy consists in correcting these defects and in supplying the patient with moderate quantities of easily digested food at proper intervals. In slight cases and those of short standing these measures may be sufficient, but in more severe ones, and especially such as are of long duration, it is necessary in addition to wash out the stomach thoroughly before meals for a day or two and then before bedtime two or three times a week, so as to get rid of fermenting residues and accumulation of partly digested food. The pylorus forms a very effective barrier to solid masses, and tough bodies like thick grape skins and the pulp of an orange have been known to remain for as long as three or even six months in the stomach—the cause of continuous irritation and fermentation. There is no doubt that emetics would be very effectual in many instances, but complete emptying of the stomach by such a process is neither comfortable nor easy to achieve, especially as these patients are rarely young and the stomach is often sluggish as regards muscular contraction.

Provision having been made for emptying and cleansing the stomach from time to time, its contraction may be promoted by the administration of a preprandial pill consisting of strychnine  $\frac{1}{4}$  grain, liquor arsenicalis 4 minims, creosote 1 minim, and extract of gentian 2 grains, twice a day. In extreme cases it is useful to apply the constant current either through the middle of the back or internally by means of a wire protected in a vulcanite tube except for an aperture at the extremity, the second electrode being placed in either case over the epigastrium. A strong current can be borne without inconvenience if gradually increased and diminished, and can be relied upon to allay the pain and vomiting, and to produce contraction of the organ. Another useful measure is massage, really deep and careful pommeling of the epigastric and umbilical regions. This affords a safe and convenient method of rousing contraction and emptying the stomach, regard being had to the position it occupies and the fact that it is commonly dragged down by the weight of its contents, the pylorus remaining looped up and somewhat kinked by the gastro-hepatic omentum.

#### ON THE TREATMENT OF CHRONIC PARENCHYMATOUS NEPHRITIS.

W. P. HERRINGHAM, in the issue of *Treatment* of June 24, 1897, tells us that in chronic parenchymatous nephritis drugs are as nothing compared to management. It used to be thought that for these patients a meat diet was not wholesome. The reasons given were: first, that meat diet increased the albuminuria; and second, that a fish, a farinaceous, or a milk diet was less irritating to, and put less work upon, the kidneys, and produced less of the toxic products which are thought to cause uremia. These ideas are not founded upon fact. Meat diet does not always increase albuminuria, and if it did the loss is so slight that it is quite unimportant. We do not know what toxic products cause uremia, and therefore cannot tell what will produce them. Lastly, there is no evidence whatever that a meat diet is irritating to the kidneys. It would be strange if it were.

The plain fact is that in regulating diet we should almost discard all thought of the kidneys, and consider the general health alone. The same diet will not suit all persons, but for each that should be chosen which will cause the least disturbance of the digestion and the highest state of health. In most cases these ends are best reached by a mixed diet, which should be given with regularity and with frugality. Excess, rich food, irregular meals, are all to be avoided, because they upset digestion. Where appetite is bad a little alcohol is necessary, and for these cases dilute spirits are always wholesomer than wine; a little alcohol does no harm, but the residual substances in wine are very unreliable. Habits of life must also be regulated, and, like diet, much upon the lines of childhood, for adults differ from children chiefly in their power of resistance, and Bright's disease by lessening this puts them back into the infant class. Such patients cannot afford the luxury of carelessness, and must wear flannel, avoid wet and cold, keep early hours at both ends of the day, and take regular exercise. Laziness is as bad as overexertion, for it lessens the internal processes, entirely unknown to us, which produce the interchange of nourishment and waste. It is generally united with greed, which doubles its ill effects. Mental overwork and a sedentary life are again a bad combination, for the first injures the primary and the last the secondary digestion.

To these general rules one condition forms an exception. If we are in fear that the tension in the vascular system will produce ill

effects diet must be kept as low as is safe. To diminish vascular tension nothing equals rest in bed and fluid diet, and short of this, where it can be borne, a vegetarian diet will have the same effect. Most of these patients cannot digest well enough to use it.

This problem, how to feed a patient who has bad digestion and high arterial tension, so that he may have enough to keep him from losing ground, and yet so little that blood-pressure will fall, is one of the most difficult in medicine. Treatment then becomes a system of ingenious catering. The best drug for this condition is iodide of potassium or sodium.

The common ailments of Bright's disease are anemia and indigestion. Patients usually take iron without difficulty, and it is the most important drug in the whole treatment of the complaint. Digestion has to be treated as if Bright's disease were not present.

The symptoms which warn us of danger are anasarca and those called uremic. In chronic parenchymatous nephritis anasarca generally coincides with scanty excretion of urine, and probably depends upon feebleness of the circulation. This itself may, of course, be due to some impurity in the blood acting upon the heart, or the nervous mechanism that controls it. One would expect that cardiac tonics would be the best treatment, but Herringham has not, as a rule, found them to answer. Once or twice striking results have followed the use of digitalis, of diuretin, or of broom tea, but he has seen similar improvement without any drug, and certainly in the majority of cases these drugs have not succeeded. Iodide of potassium in rather large doses, cantharides and belladonna have been recommended by different physicians.

Purging and sweating are said by some to be of more value. For the first the acid tartrate of potash and jalap, or some other resin, is a standard prescription, and Roberts uses it in a large dose every second or third morning in preference to smaller doses more often repeated, because the nausea and unpleasantness has thus to be less often undergone. To increase sweating, hot baths, vapor baths, and pilocarpine can all be used. When patients are very dropsical they cannot be put in a bath, but regular baths are a very good means of prevention. If needs must, the pressure on the skin may be relieved by inserting Southey's tubes, or by acupuncture. The first is the best, because the fluid then runs away and does not irritate the skin. Antiseptic solutions ought to be applied to

the skin before the tubes are inserted and after they are withdrawn, and the tubes themselves should be boiled before they are used. When dropsy comes on without signs of fresh inflammation of the kidney it is a bad augury.

Uremic symptoms are repeated vomiting, paroxysms of dyspnea, persistent headache, drowsiness, coma, and convulsions. We suppose them due to a poisoning of the nervous centers by some impurity in the blood, but we do not know what it is. Vomiting he has seen relieved by hydrocyanic acid; when it is not severe gentian and bicarbonate of sodium suffice. The headache is sometimes cured by cannabis indica, sometimes by phenacetine. One ought also to increase the secretion of urine, if that be possible, by some of the drugs mentioned above. He does not know any drug that will prevent the curious asthmatic attacks that sometimes occur. When they come on an injection of ether is the best treatment. Coma and convulsions are not necessarily fatal, but they are very grave. Purging and sweating are the two main lines of treatment, and chloroform can be given in the convulsions. Much controversy has raged round bleeding in these states. It seems allowed on all sides that it is of no use for coma. The writer has never used it for convulsions, but it used to be much recommended, and speaking *a priori* it seems reasonable. The fact, however, remains that it has gone out of fashion, and perhaps that is better evidence than any written opinion.

#### SERUM TREATMENT OF SYPHILIS.

GROSZ (*Wiener Medizinische Blätter*, 1897, No. 8) gives a critical and historical account of the curative treatment of syphilis by means of serums. He states that three distinct lines have been followed by clinical observers, all of which are asserted to have resulted in some measure of success. These are: (1) Subcutaneous injection of the blood-serum of different animals, these having a natural immunity to the syphilitic infection; (2) animals have been inoculated with blood from patients with secondary syphilis, or have had chancres engrafted under the skin, and then after some time they have been bled and their serum injected into syphilitic patients; (3) the injection into recently infected persons of blood-serum taken from patients with secondary or tertiary syphilis.

1. Feulard used dog's serum, but came to

the conclusion that it had no specific effect. Tommasoli used lamb's serum, in doses of two to eight cubic centimeters, in ten cases of secondary syphilis, and is of opinion that it was more successful than the ordinary methods of treatment. Three of the cases had relapses. Kollman used serum from the sheep, calf, dog, and rabbit, in doses of six cubic centimeters, going up to 165 cubic centimeters altogether; out of twenty-one cases he could not reckon on a single success. There was slight improvement in the general nutrition. Cotterell, giving dog's serum subcutaneously, thought that the course of the disease was favorably affected thereby; while Müller-Kannberg, using horse serum in daily doses of five cubic centimeters in twelve cases, obtained absolutely negative results.

2. Richet, Hericourt, and Triboulet injected dogs with blood from patients who had secondary syphilis, and a few days later bled them and used the serum on men. A patient with gummatous eruptions and ulcers got twelve cubic centimeters of the serum in six days, and in a month the ulcers had healed, while the general condition was greatly improved. The cure was not permanent. Two other cases of tertiary syphilis did much better under similar treatment. Gilbert and Fournier used goats and dogs which had been infected with syphilitic blood (from secondary syphilis), or with excised chancres placed under the skin. Seventeen cases in all were treated with serum obtained from these animals, and the results were as follows: Five were favorable, three were negative, two doubtful; the remaining seven had been treated with mercury in addition, and hence no proper conclusion can be drawn regarding them. Tarnowsky used foals, to which he had administered for a long time different syphilitic material. After using their serum on six patients, he concludes that it has absolutely no ameliorating or curative effect.

3. Bonaduce bled three markedly syphilitic children, and mixed the serum with three times its own amount of water, heated the mixture for ten minutes to 100° C., and then filtered it. A patient with a hard chancre and swollen inguinal glands got every second day ten cubic centimeters, until 120 cubic centimeters had been injected. During this time the local sore and the adenitis disappeared, and seven months after there had been no further sign of syphilis. By heating, Bonaduce thinks he destroyed the syphilitic poison, but not the immunizing body. Pelizzari bled

persons after the secondary stage was over, defibrinated the blood, and injected one or two cubic centimeters until twenty to fifty-five cubic centimeters had been given. In all the patients so treated the secondary symptoms were extremely slight. Boeck, using "tertiary serum" and also hydrocele fluid from a tertiary case, treated seven patients recently infected. In these the secondary symptoms showed themselves but were extremely light, while the primary sore disappeared more rapidly than usual. Wewiorowsky, using a similar serum, concludes also that it affected favorably the course of the disease, but relapses are apt to occur, and it is difficult to determine if the syphilis has been really cured. Spiegler holds that serum from animals cannot be of value, as, so far as we know, immunity cannot be conferred on another species by means of serum from naturally immune species. The same objection holds good, he thinks, to the value of serum from animals which have received injections of syphilitic material. If apparently favorable results are obtained by either of these methods, they are not in any way specific, and are comparable to the local reactions which, for example, tubercular tissues show after the injection of numerous substances. He thinks the same objections do not apply to "tertiary serum."

Grosz concludes that the numerous failures and contradictions simply show that none of the measures hitherto used are of any special value, and that more carefully considered attempts to solve the question are urgently needed.—*Edinburgh Medical Journal*, July, 1897.

#### THE DANGER OF THE VAGINAL INJECTION.

The *New York Medical Journal* of July 3, 1897, deals editorially with this important matter. It states that the case reported by Dr. Wells at a recent meeting of the Society of Alumni of the Charity Hospital—for by its old name they still prefer to call the hospital—may well serve as the text for renewed cautionary remarks as to the danger of the self-administered vaginal injection. In this case a woman who had had a natural labor seventeen days before, and was at the time in a perfectly normal condition, save for a vaginal discharge observed by herself and a state of retroversion of the uterus discovered shortly afterward by Dr. Wells, took it into her head to administer to herself a vaginal

douche. Accordingly she filled a Davidson syringe with plain water, thrust the long rectal nozzle of the instrument into her vagina to the whole length, and squeezed the bulb forcibly. She was at once seized with severe abdominal pain and came very near going into a state of collapse. Having escaped the immediate danger, she suffered from a continuance of the pain, which extended up to the region of the diaphragm and was accompanied with tympanitic distention of the abdomen and a condition highly indicative of general peritonitis. Fortunately, the trouble was soon narrowed down to an inflammatory process seated in the pelvis and giving rise to a massive exudate—a state of things bad enough, to be sure, and tolerably certain to trouble her more or less for years to come, perhaps seriously, but not putting her life in immediate jeopardy. For a time Dr. Wells may well have been in doubt, as he says he was, as to whether he ought not to resort to abdominal section.

It seems quite probable, as Dr. Wells intimates, in view of the retroverted state of the uterus in this case, that the nozzle of the syringe was thrust into the uterine canal, possibly nearly to the fundus of the organ, and septic or at least irritating material forced through a Fallopian tube into the peritoneal cavity. It is stated in the account that the woman had had gonorrhea some years before. The entrance of the nozzle into the uterus, perhaps carrying with it some infectious matter from the vagina, and certainly involving a flooding of the uterine cavity with water that in all probability was not free from septic material, furnishes an obvious and plausible explanation of the manner in which the pelvic inflammation was set up in the case under consideration; but such an occurrence does not by any means constitute the sole mishap of a vaginal injection improperly administered. In order that the injection may be forced into the uterus and through a Fallopian tube, it is not in the least necessary that the nozzle should enter the uterine canal, that one of its apertures should be so situated as to send a stream into the uterus, or that the organ should be retroverted; the one indispensable condition of safety is the provision of a free passage for the outflow of the fluid injected.

If a vaginal douche is to be employed during the puerperal period, says Dr. Wells, it should be given only by the physician or a thoroughly competent nurse. That is perfectly true; but, apart from the puerperal

condition, danger always lurks in a vaginal injection administered without due precaution. How does the uninstructed woman usually proceed when she sets about giving herself a vaginal injection? She squats on some convenient utensil, thrusts in the nozzle, which is almost always of a kind utterly unfit for the purpose, and pumps rapidly (if the syringe is of the bulb type), so as to be over with the unpleasant affair as soon as may be; or hangs the bag high, if she is using an apparatus of the fountain type. In either case, if she has the good luck not to drive the nozzle into her uterus—and there is many a woman going about in tolerable health, so far as she knows, whose uterine orifice will readily admit an ordinary syringe nozzle—in either case, we repeat, she rather suddenly fills her vagina to repletion, even to distention, perhaps with a liquid that, whether by reason of its temperature or of something it holds in solution, may act as a stimulus to spasmodic contraction of the pelvic and perineal muscles. Fortunate is it for her if her vulvo-vaginal sphincter, although never designed to grasp so tiny an object, does not grip the nozzle so vigorously as to imprison the water under a pressure that is very apt to force it into the uterus. It is necessary very often to intrust women with the self-administration of vaginal injections—not, of course, in the lying-in period—and they should always be instructed how to guard against their dangers; and in particular they should be provided with a nozzle so constructed that no amount of contraction about its shank can close the vaginal outlet. Unfortunately, not one nozzle in a thousand is so constructed.—*New York Medical Journal*, July 3, 1897.

#### RECENT STUDIES IN IMMUNITY.

Under this interesting heading the *British Medical Journal* discusses this important subject editorially in its issue of June 26, 1897.

The manner in which the living organism protects itself against the ravages of noxious microbes and their poisonous products is a branch of pathology yielding to no other in interest. Over it the old warfare of the cellular and humoral schools has again been waged, and although we must admit that the brilliant researches of Metchnikoff have established the doctrine of phagocytosis upon a firm basis, it cannot be denied that it fails to explain a certain number of facts which

are better accounted for by the humoral theory, of which Pfeiffer is one of the most ardent and distinguished supporters. Upon the solution of this question hangs one of even greater practical importance, the means by which the more or less permanent immunity following an attack of a specific infective nature is established. The study of so-called antitoxic serums shows that they fall in two groups: those which are truly antitoxic—that is, neutralize microbic poisons—and those which are bactericidal in their action. Most serums possess both these properties to some extent, but one is usually far in excess of the other; thus the serums of cholera and typhoid are mainly bactericidal, those of diphtheria and tetanus mainly antitoxic. A most important contribution to our knowledge of this subject was not long ago made by Wassermann, who succeeded in obtaining from cultivations of the bacillus pyocyaneus a serum possessing both these functions to a marked degree, and also serum possessing one or the other property at will. He found that an animal treated with toxins was protected against both toxins and bacteria, while one treated with bacteria was immune as regards bacteria only. He showed that minimal immunity could be produced by the injection of a single dose of toxin, insufficient to cause severe symptoms; it often appeared on the second day, never later than the fifth. The amount of the immunity varied mathematically with the quantity of toxin injected, but much more with the individual animal. Wassermann made use of the fact that the toxicity of pyocyaneotoxin is but slightly diminished by boiling to attack the vexed problem as to the identity or non-identity of toxic and immunizing substances in bacterial cultures. He found that weakening the toxicity of the toxin diminished *pari passu* its immunizing power, and that consequently—contrary to his formerly expressed opinion—the poison was at the same time the agent conferring immunity.

Turning to the question of ordinary passive immunity—that is, the protection of an animal against an infective disease by means other than its contraction—the author immunized a goat in various ways, and showed that the properties of its serum varied with the method adopted. Thus when the animal was immunized with increasing doses of toxin, its serum was found to possess both antitoxic and bactericidal properties up to a certain limit, beyond which they could not be developed. On further immunization with

increasing doses of sterile living cultures, the bactericidal power of the serum increased, while the antitoxic rapidly diminished. There can hence be no doubt that, although they are not distinguishable by their behavior with chemical or physical reagents, antitoxic and bactericidal substances are different in nature. Thus, while as soon as the former are present in the serum as the result of inoculation with sterile broth cultures, it has also acquired bactericidal properties, it may be powerfully bactericidal without possessing any antitoxic power. To obtain protection against both microbes and toxins, it is therefore necessary to immunize with increasing doses of the latter.

A further interesting research had for its object the elucidation of the true cause of the bactericidal action of antitoxic serum. If this action were an inherent property of the serum it would be possible, by giving a sufficiently large dose of the serum, to kill any number of bacilli introduced into the body of an animal. But this is not the case; although 0.01 cubic centimeter of serum destroyed one loopful of a living culture in the animal body, one cubic centimeter, or 100 times as much, could not destroy three loopfuls. We are, therefore, forced to believe—and this is the case with other micro-organisms besides bacillus pyocyaneus—that an actual reaction of the cells of the body takes place, gradually building up the bactericidal substance out of the inactive protective serum. Till this reaction occurs the microbes may kill the animal, though an excess of immunizing substance is present in its blood.

Wassermann finally made use of the fact that the virulence of pyocyaneotoxin is but little diminished by a temperature of 100° C. to solve the question as to whether the antitoxic serum really destroys the toxin or simply rapidly immunizes the animal against it. That the latter is the case is shown by the result of boiling a mixture of pyocyaneotoxin and serum which was harmless to animals. The protective properties were by this means destroyed, while the toxic were unaffected; on cooling and adding a fresh supply of serum the mixture became again innocuous, proving that the toxin is not destroyed by the serum.

Furthermore, the doses of toxin and serum cannot be increased indefinitely without harm to the animal, which should be the case if they simply produced a harmless mixture. Wassermann never succeeded in rendering more than six times the ordinary fatal dose of pyocyanous poison harmless in the body,



however great the amount of immunizing serum he gave at the same time. There is no doubt, therefore, that in the case of the antitoxic as of the bactericidal substances in protective serums a reaction of the tissues is essential to their efficacy, and that the failure results from the non-development of this reaction.

ON THE TREATMENT OF PHTHISIS BY ANTISEPTICS, WITH SPECIAL REFERENCE TO EUCALYPTUS OIL.

ARTHUR DOUGLAS writes under this interesting heading in *Treatment* of June 24, 1897. He thinks that in treating phthisis, by whatever method adopted, we must bear in mind that we are contending with two forces in the lung, one depending on and possibly following the other. We have first the presence of the tubercle bacillus with its growth and multiplication, and secondly, we have the inflammatory changes arising from them.

It is bearing on the former condition that the author gives a few suggestions, but of course the "changes" must not be lost sight of.

Antiseptic treatment, having for its object the destruction of the tubercle bacilli, is not the sole treatment in phthisis, though necessarily a most important one. If we can by any means remove the cause of the inflammatory changes Nature herself may effect a cure. We cannot expect a permanent cure if our efforts are applied only to these changes, while no measures are being carried out to arrest their cause.

By an antiseptic treatment we may at least hope to cut short the disease, and thereby prolong the life of our patient. But obviously we cannot ever expect to repair the mischief already done to a lung "which consists in absolute tissue loss, and rebuild a partially destroyed" lung. So it is in the early stages of phthisis, when the destruction mentioned is not so extreme, and where a sufficiency of lung remains to carry on the proper aeration of the blood, that we look for the most encouraging results by the use of antiseptics.

In carrying out the antiseptic treatment of phthisis the drug he prefers to employ is the oil obtained from the leaves of the *Eucalyptus globulus*, for the following reasons: (1) It is three times as powerful an antiseptic as carbolic acid in arresting the development of bacteria. (2) It is volatile at ordinary temperatures. (3) Its vapor ozonizes the oxygen

of the air. (4) Its smell is not unpleasant. (5) It is readily absorbed into the system either (a) by the air breathed; (b) by the stomach; or (c) by the skin. (6) After absorption it exercises no irritant or other deleterious effect on the body. (7) It is excreted in considerable amount by the breath. (8) It is a powerful "febrifuge." (9) It reduces the force and frequency of the heart. (10) It increases elimination of urea. (11) It lessens mucous secretion, improving its quality and promoting its expectoration.

The author has frequently administered it in five- to thirty-minim doses for weeks at a time without the manifestation of any symptoms. It can be conveyed into the system either (1) by the mouth, (2) by inhalation, or (3) by inunction. Internally it is conveniently included in the following formula:

R Ol. eucalypti, 5 minims;  
Sp. chloroformi, 10 minims;  
Sp. ætheris, 10 minims;  
Mucilage acacia, 1 drachm;  
Glycerini, ¼ drachm;  
Aq., ad 1 ounce.

M. Sig.: Give this three times a day.

The dose of the oil is gradually increased to ten minims thrice daily.

For "inhalation" he prefers not to use any steam vaporizer, atomizer, or respirator. The object he has in view is to induce the patient to breathe a "saturated atmosphere" without any effort or inconvenience on his part, and without interfering in many cases with his daily avocation.

To do this effectually we proceed to saturate the atmosphere in the patient's bedroom by vapor volatilized from the eucalyptus oil. It is necessary that a large extent of surface should be exposed. This is effected by saturating a long piece of cotton or linen fabric with the oil and stretching it out in several layers, one above another, over a double series of horizontal rails placed parallel to each other. By this means a large area is exposed without occupying too much space. The size of the cotton should be about ten feet long by one foot broad, divided into eight layers or folds. The dry cloth is dipped into a basin containing about six or eight ounces of the oil, being gently squeezed to prevent dripping, and hung in the manner indicated at a temperature of 65° F. Over four-fifths will have been found to have evaporated in six hours.

The cloth should be placed in the patient's room one hour before he retires to rest, the windows and door being closed. On enter-

ing the room the patient should be directed to systematically practise full and deep breathing for five or ten minutes in a standing position. An attendant then rubs into the chest three or four drachms of an ointment of lanolin and eucalyptus oil three drachms to the ounce. This should be completely absorbed.

It is desirable, too, that the patient go through a gentle exercise for ten minutes with light dumb-bells or Indian clubs to promote expansion of chest and muscles. This exercise must always be suspended short of fatigue; there must be no shortness of breath and no dilatation of *alæ nasi*. The patient then retires to bed, the windows and door remaining closed. This treatment should be persistently carried out for weeks and months, and should not be in any way relaxed on improvement taking place. Obviously the cases most benefited are those taken at an early stage; but even in advanced cases no little improvement may be looked for, especially in the amount and freedom of the expectoration, diminished waste, and fever.

It must be understood that while advocating so strongly the antiseptic treatment, other measures are not by any means to be forgotten, as the dietetic, hygienic, and climatic, combined when necessary with tonics, stimulants, and stomachics; on the contrary, they should receive much attention from the physician. At the same time, many cases have shown great improvement by this method alone.

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*THE TREATMENT OF BRONCHOPNEUMONIA BY RECTAL INJECTIONS OF CREOSOTE.*

In the *Journal des Praticiens* of June 12, 1897, SCHOULL records the results which he has obtained from this method of treatment. He first calls attention to the fact that as long ago as 1892 good results were reported to the Academy of Medicine of Paris as having been obtained by the rectal injection of creosote as an antipyretic in the grave pulmonary complications of typhoid fever, and in 1884 for the treatment of bronchopneumonia. After a further historical summary of these facts Schoull proceeds to express the belief that in bronchopneumonia the favorable action of the creosote depends upon its ability of acting as a bactericide upon the pathogenic micro-organisms which are supposed to be present in this disease. He then

makes the following report as to his statistics: Out of sixty-seven children with bronchopneumonia treated by this method there were sixty-two recoveries and two deaths. In three cases in which the injections were not used there were two deaths and one recovery. In a child of eleven years with croupous pneumonia treated by this means there was also recovery. In adults, out of eleven cases of bronchopneumonia treated by this method there were eleven cases of recovery, and in four croupous pneumonias treated by this method there were three recoveries and one death, a double pneumonia being present in the last condition. These cases were all in men. In women there were fourteen cases of bronchopneumonia with fourteen recoveries, and five cases of croupous pneumonia with five recoveries.

Other statistics have been collected which joined to these give the following results: Out of 130 cases of bronchopneumonia treated by rectal injections of creosote, 125 recovered and only twenty-five died. In ten cases of croupous pneumonia treated with injections, nine recovered and one died. He therefore believes that this method of treatment is an exceedingly favorable one and strongly recommends its employment.

[While these suggestions may be of value in certain cases, we are exceedingly doubtful whether other physicians would have as good results from their employment. It cannot be supposed that the rectal injection of creosote is of any advantage in this condition over its administration by the stomach, except that avoidance of gastric irritation can be obtained, and we do not believe that creosote has any specific influence in this disease.—ED.]

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*REMARKS ON SYMPHYSEOTOMY.*

In the *Boston Medical and Surgical Journal* of July 8, 1897, ENGELMANN tells us that this operation is one which merits our consideration, more especially as there are those who are inclined to view askance, if not to ignore, the procedure as one of the many fleeting innovations of this progressive era, or as too crude or unsurgical as compared with Cæsarian section, which is now extended, by reason of its success as a hospital operation in elective cases, upon most elastic indications to the minor degrees of pelvic contraction, and even into the realms of version and the forceps, with but little thought of symphyseotomy or premature labor.

This is not a new operation, as it has been known for over a century, and practised even in those early days with fair success and with excellent results as compared with Cæsarian section; yet it has not received the consideration it merits until within the past decade; in that time it has undergone a crucial test, and must now be recognized as one of the accepted procedures of modern obstetric art.

Symphyseotomy holds an unquestioned place in operative midwifery; but its indications are yet to be fixed; its application and limitation to be defined. In the main, we may say that the operation pertains to the intermediate degree of pelvic contraction, that it replaces craniotomy on the living child and premature labor in the earlier months, and must be compared with Cæsarian section on the one hand and high forceps and version on the other, the latter coming in contact with symphyseotomy in the minor contractions, and the former by its relative indications being almost a parallel operation. The indication for pubic section, as he formulates it, is to be found in the slighter disproportion, two centimeters or less, between biparietal and pelvic conjugate, because two centimeters can always be gained by the operation; or, in other words, with the average fetal head of this country, in a pelvis of between seven and nine centimeters ( $2\frac{3}{4}$  to  $3\frac{1}{2}$  inches). As yet the various operators differ somewhat as to the sphere of the operation, at least in so far as its limits are marked by pelvic measurements alone—always an uncertain guide.

Pinard gives the widest scope to symphyseotomy, from a conjugate of eight centimeters ( $3\frac{1}{8}$  inches), above which he resorts to premature labor, to one of five centimeters ( $1\frac{3}{4}$  inches), within the absolute indications of Cæsarian section, thus confining Cæsarian section to a pelvis of less than five centimeters ( $1\frac{3}{4}$  inches).

Leopold allows a much smaller range to the operation, but likewise applies it to the higher degrees of contraction—to those with a conjugate of 7.5 centimeters to 6 centimeters, the limit for absolute Cæsarian section.

Morissani himself does not carry symphyseotomy quite so far, limiting its application to a conjugate between 8.8 centimeters and 6.7 centimeters ( $3\frac{1}{8}$  to  $2\frac{1}{8}$  inches)—very much the class of cases formerly consigned to craniotomy on the living child—and, if elective, to premature labor in the earlier months.

Tarnier gives preference to symphyse-

otomy in pelves of less than eight centimeters, though he reports a series of cases of induced labor in contractions to 6.6 centimeters ( $2\frac{1}{4}$  inches) unfavorable by reason of the high fetal mortality. Leopold limits premature labor to a conjugate between eight centimeters and seven centimeters, cases in which at term he advocates forceps or version in the flat pelvis and version in the justo-minor above 7.5 centimeters; symphyseotomy below. Tarnier gives preference to premature labor as the method of choice in pelves above 8.6 centimeters, when it can be inaugurated at the beginning of the ninth month.

Such have been the varied degrees of pelvic contraction to which symphyseotomy has been applied; and though the conditions and circumstances of the individual case will determine our choice of method, we must be guided to some extent by the results of the various operations resorted to in those intermediate forms of pelvic contraction for which symphyseotomy is advocated, and it is well to bear in mind that in these cases the mortality from forceps version and premature labor is not a low one, but greater than from the pubic operation.

The high-forceps operation is reported by Zweifel with a mortality of 7.3 per cent. The Dresden clinic from 1889 to 1894 records a maternal mortality of 5.17 per cent., and a fetal mortality of 21 per cent., 5.6 per cent. due directly to the operation; this with a conjugate down to 7.5 centimeters. Version in this class of cases, to a conjugate of seven centimeters in the flat and 7.5 centimeters in the justo-minor pelvis, gives a mortality of ten per cent. (Leopold).

Premature labor is practically without danger to the mother (perhaps one per cent.) when the operation is performed, as it usually is, by an experienced obstetrician; but the fetal mortality is great (40 per cent. in the cases reported by Tarnier, with a conjugate between 6.6 and 8.8 centimeters); and of these children born before the ninth month few survive the first year unless well cared for and favorably situated.

Craniotomy gives a mortality of perhaps five per cent.; Cæsarian section fourteen to twenty per cent.; and symphyseotomy, at the utmost, not over eleven per cent.—we may say, from two to eleven per cent.

The safety or danger of an operation is a patent argument for or against; and since symphyseotomy and the relative Cæsarian section as now advocated apply to the same moderate disproportion between fetal head

and maternal pelvis, to a similar class of cases, it may be well to note the relative mortality of these operations more carefully.

#### MORTALITY OF SYMPHYSEOTOMY.

	Maternal. Per cent.	Fetal. Per cent.
1777-1808.....	34	72
1858-1866.....	20	18
1887-1893, collected by Morissani.....	11.6	12
Expunged.....	.8	..
1893, in Germany, 1 in 37.....	2.7	..
To 1893, in America.....	18	29
Since 1893, in America.....	13	..
Expunged.....	2	..
During 1894, in United States, 44 cases.....	13.5	27
In 1894, Faraboeuf, Paris.....	2	..
In 1895, New York, 21 cases.....	9	14
In 1895, Italy, 53 cases.....	4	5
In 1895, Pinard, 44 cases.....	2+	..
In 1895, total of 303 cases from all countries (Harris).....	11	..
Zweifel, 23 cases.....	..	8
In Vienna Hospital, first 100 years.....	100	..
In Paris during first 80 years.....	100	..
In Europe to 1868.....	46	..
In America to 1868.....	60	..
In America, 1875-1885 (Harris), 33 cases.....	74	54
In America, 1882-1885 (Harris), 10 cases.....	90	80
In 1894, 40 cases in United States (Haven).....	22.5	..
Expunged.....	9	..
Leopold.....	15 to 20	..
Sänger.....	14	..

The lowest mortality of Cæsarian section is fourteen per cent., and that by only one operator, Sängér, in a small series of cases about equal in number to the symphyseotomies reported by Zweifel without a single death; even the mortality of the 303 cases collected by Harris, a total from all countries in 1895, is only eleven per cent.

Such are the results, as they have been obtained in cases taken as they come, one and all, not selected, none expunged, very much more favorable for mother and child than similarly collected Cæsarian sections, and more favorable even than small series by expert operators. Whilst those facts have but a very relative value, we cannot entirely ignore them.

The operation is decidedly less dangerous than Cæsarian section, and at least equally safe and more certain than forceps or version in the shorter sacro-pubic diameters. It is hardly more serious than premature labor in a pelvis from 7 centimeters to 8.5 centimeters, and far more promising for the child.

Yet we are loth to adopt symphyseotomy, especially as compared to the relative Cæsarian section; it is not so brilliant and impressive an operation and does not appeal to the surgeon of to-day as so strictly surgical. But we must accept that procedure which promises the greatest benefit to our patient with

least danger to herself and child. Then we must consider, not alone the great centers, the hospitals, but the country at large; and pubic section is of far more general usefulness, as it is not confined to such an extent as the Cæsarian to the surgical teacher or to the hospital and its trained staff. In fact, the first successful operation in this country, followed by others at a later day, was performed by a young practitioner in Texas.

Symphyseotomy is eminently adapted to the more trying conditions met with in everyday practise, successful especially as an operation of necessity after forceps have been tried and have failed, when Cæsarian section is very unpromising. Whatever experience may henceforth teach or our preference dictate, with moderate disproportion between head and pelvis—not over two centimeters, with pelvic contraction not below seven centimeters ( $2\frac{3}{4}$  inches)—pubic section is to be considered and is our only resource after an unsuccessful trial of forceps if the child is to be saved, replacing the brutal craniotomy of former days; and for the present we must accept such failures of forceps with moderate disproportion of head and pelvis as an absolute indication for symphyseotomy, for which we should always be prepared in the lesser degrees of pelvic contraction.

#### ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

In the *Edinburgh Medical Journal* for October, 1897, Mr. BERRY in an article on this subject, after discussing the general subject of conjunctivitis, shows that chronic conjunctivitis is met with in all degrees of severity, from what is little more than slight hyperemia of the conjunctiva to a greatly thickened, flesh-looking, pus-secreting state of that membrane, with incrustation of the lid margin; and often, too, owing to deeper infiltration, the palpebral fibers of the orbicularis fail to keep the lower lid properly in contact with the eye. The swollen conjunctiva thus becomes everted, and the excretion of tears is interfered with. The overflowing tears cause excoriation of the skin, and the ectropion once set up becomes more and more marked as time goes on. The everted conjunctiva, besides being thickened, is, as the result of constant exposure to the air, also hardened, and may even be incrustated or covered with scales or scabs.

These very bad cases of chronic conjunctivitis are mostly met with in old people of

uncleanly habits; they are not the cases one is most frequently called upon to treat.

In all cases in which conjunctivitis has become chronic, the first points to be ascertained, before any line of treatment is begun, are the nature of the external surroundings and of the treatment which has already been adopted. Where the patient is constantly subjected to smoky or hot and close atmospheres, or to any evident source of irritation, such conditions should, as far as possible, be removed. If he has been poulticing, or, what comes to the same thing, keeping moist applications to the eye, or tying it up and allowing the bandage to become moistened by tears, or if strong astringent lotions have been used, such treatment should at once be discontinued. It is generally well, too, to look to the state of the mucous membrane of the nasopharynx, as a chronic catarrh in this situation is apt to keep up a conjunctivitis, even although it may not have been the principal cause in originating it. Still more important in this respect is the state of the tear sac. Inflammation of the mucous membrane lining the tear duct and sac is not infrequently complicated by conjunctivitis, which is then generally set up by inoculation from this source. On the other hand, even severe purulent primary inflammation of the conjunctiva seldom, if ever, spreads to the tear sac. A proper treatment of the inflammatory condition of the nasopharynx is often useful, in addition to anything which may be undertaken for the more direct treatment of the conjunctivitis. But treatment of the sac for a coexisting blenorrhea is an absolute necessity. Without an improvement in this situation no treatment of the conjunctivitis alone can be of much avail.

In the least severe cases of chronic conjunctivitis, in which there is little or no thickening of the conjunctiva, and not much increase in the secretions, it is not generally necessary, if the precautions referred to as to surroundings be taken, to do anything very active. It is mainly in respect to their origin, namely, a preceding acute attack, that they differ at all from cases which the writer has described as conjunctival congestion. They should therefore be treated much in the same way. Change of air, especially to some dry, high-lying inland place, may be tried, and any existing error of refraction should be corrected. In addition, a weak astringent may sometimes be useful, such as solutions of hazeline, tannic acid, myrrh, alum, cinchona, or ichthyol.

The following are prescriptions which may be recommended for this purpose:

- ℞ Hazeline, 4 ounces;  
Aque carui, 8 ounces.
- ℞ Acidi tannici, 6 or 12 grains;  
Sodæ biboratis, 3 drachms;  
Glycerini, 6 drachms;  
Aque camphoræ, ad 12 ounces.
- ℞ Tincturæ myrrhæ, 2 drachms;  
Aque destillatæ, 12 ounces.
- ℞ Alumnis, 10 or 20 grains;  
Aque rosæ, 12 ounces.
- ℞ Extracti cinchonæ flavæ liquidi, 48 minims;  
Acidi hydrocyanici diluti, 15 minims;  
Glycerini, 6 drachms;  
Aque destillatæ, q. s. ad 12 ounces.
- ℞ Ichthyol, 1 drachm;  
Aque sambuci,  
Aque destillatæ, 3â 6 ounces.

In more severe cases, with thickening of the conjunctiva, swelling of the folds and deeper infiltration, as evidenced by slight ptosis, and with more or less distinct mucopurulent secretion, there is, Berry believes, nothing better than lead. A solution of the neutral subacetate of lead, in the strength of ten grains to one ounce of water, may be painted directly over the mucous surface of the everted lids once daily, and an irrigation of boracic acid made twice or thrice daily, or a wash of the same lead salt in weaker solution (one to two grains to the ounce of water) may be used about three or four times in the twenty-four hours. In the worst cases, painting with strong chlorine water or a two-per-cent. solution of nitrate of silver once daily is useful in addition to the lead wash. Where there is ectropion of the lower lid, the lower canaliculus should be slit with a Weber's knife. The scales must also be removed from the lid margin, and an ointment of iodoform and vaselin (1 to 5) smeared on the raw surface.

Owing to the frequency of folliculosis in young people, it often happens that the appearance of the conjunctiva presented in an ordinary mucopurulent inflammation is such as to suggest some different specific type of conjunctivitis. The overgrowth of adenoid tissue may be so marked a feature that the follicles appear as numerous papillæ in the swollen and congested membrane. When this is the case it is not uncommon to hear the conjunctivitis spoken of as a follicular conjunctivitis. It is not improbable that the same irritation which causes the conjunctiva to inflame may give rise to some further follicular enlargement, but, as far as the inflammation goes, both in its causation and course, it is a simple conjunctivitis. The treatment

should be in every way the same as that already described. Special care, however, is required in irrigating, as the presence of the many elevations makes it more difficult to thoroughly remove the secretions.

#### THE SURGERY OF THE STOMACH.

EWALD, of Berlin, read before the recent International Medical Congress a paper on this subject, which his large experience renders of great interest. The prognosis of operation upon the stomach has definitely improved, although there is still a marked difference between the results as reported by surgeons and physicians. He has had under observation in the past two and a half years twenty-nine cases of gastro-enterotomy, seventeen cases of resection, and twenty-two cases of gastrotomy. In most of the cases the condition dealt with was carcinoma, but there were three cases of benign stricture of the pylorus. In all but the three cases the immediate operative result was perfect. The following were the final results: 26 gastro-enterotomies, with 16 deaths, or 62 per cent.; 13 resections, with 9 deaths, or 69.2 per cent.; and 22 gastrotomies, with 12 deaths, or 54 per cent. mortality. These results are more unfavorable than those reported by surgeons, especially those from Mikulicz's clinic. But the surgeon, says Ewald, often regards a survival of the operation as a cure.

The limitations of the indications for operation, which are very variable, cause the statistics to vary; for example, the exclusion of manifestly unfavorable cases, which improves the statistics. The principal reason for failure lies in conditions which are beyond the surgeon's control. Cases often present insurmountable difficulties.

For the prognosis the following factors are important: (1) the position of the tumor on the stomach wall and the extent of surface involved; (2) the extent of metastatic involvement of other organs; (3) the extent of cachexia and consequently diminished powers of absorption and assimilation after the operation. Before opening the abdomen one can form no idea of the position and relations of the tumor. The so-called early diagnosis of carcinoma by analysis of the gastric secretion has not proved of value. The increase in the lactic acid appears, as a rule, later than the time the tumor first becomes palpable. Without the palpable tumor the diagnosis can only be extremely doubtful. We operate earlier at present than formerly, only be-

cause we make up our minds to operate, as a rule, sooner. The possibility of early operation depends entirely upon early recognition of the tumor. Gastrotomy is little more than a method of producing euthanasia. Cases of carcinoma of the esophagus should be supported as long as possible by feeding through esophageal tubes or per rectum, and gastrotomy attempted only when the body weight begins to diminish to the danger point.

In cases which apparently present favorable conditions for operation the prognosis is always doubtful, and interference should be advised only with a full understanding of this fact. The prospects of a cure are hardly twenty-five per cent., and of improvement not more than fifty per cent.

For every possible reason cases which seem favorable should be brought to operation at the earliest possible moment.—*Boston Medical and Surgical Journal*, Oct. 14, 1897.

#### REMARKS UPON THE NON-OPERATIVE TREATMENT OF CHRONIC SUPPURATIVE DISEASE OF THE ANTRUM AND VAULT OF THE TYMPANUM.

Dr. BUCK, the well known otologist and editor, contributes to the *Medical Record* of September 25, 1897, some of his views on this subject. As he well points out, recent otological literature is full of treatises which deal with the subject of new operative methods for the cure of chronic suppurative processes in the vault of the tympanum and the mastoid antrum. Of these operations ossiculectomy (for those cases in which the disease is limited to a small area within the tympanum) and the so-called Stacke's operation (for those in which the antrum is also involved) are the two representative types. It is not necessary here to enter into any further details regarding these operations or to discuss their relative merits. Suffice it to say that both of them have passed the probationary stage and are now generally accepted by otologists as safe and effective surgical procedures for the cure of the pathological conditions referred to above. Conceding, therefore, the value and the safety of these operations, the writer is nevertheless disposed to believe that they are resorted to in many cases in which the simpler cleansing methods would be found quite as effective in curing the disease. This remark has reference mainly to cases which are seen in private practise. In the treatment of infirm patients it is not often possible in our large-

cities to devote at least half an hour twice or three times a week to a single case; and, furthermore, experience in New York has shown that infirm patients cannot be depended upon to attend the institutions regularly for treatment. But unless these cleansing procedures are carried out in a minute and painstaking fashion, and at rather frequent intervals (two or three times a week), at best only a temporary amelioration of the disease will be secured. The writer is satisfied, therefore, that in dealing with this class of patients the otologist is quite right in urging the operative rather than the non-operative mode of treatment. In private practise, however, the conditions are quite different. The surgeon can give to this class of cases all the time that may be required, and the patients themselves can be depended upon to be regular in their attendance. Then again many private patients object strongly to being subjected to an operation which requires the use of ether or chloroform as an anesthetic, and which may keep them confined to bed or to the house for several days. It is natural, therefore, that these individuals, when the situation is laid before them, should prefer to have the cleansing or non-operative method of treatment tried first. It is not in every case, however, be it clearly understood, that we can safely offer this choice to the patient. Symptoms may have already developed which point to an extension of the disease to important neighboring organs, and in that case we must recommend strongly the more radical plan of treatment by operation—either Stacke's or the regular mastoid operation. But in most, if not all, of the cases in which a simple ossiculectomy is performed, and in quite a large proportion of those operated upon by Stacke's method, no such threatening symptoms exist, and consequently we are at liberty to deal with the problem before us in a more leisurely manner. If in such cases the opening in the tympanic membrane through which the pus and other products of the disease escape into the external auditory canal is fairly large—say two or three millimeters in diameter—and particularly if it occupies a high position, there can be no question about the propriety of giving the cleansing method a fair trial. On the other hand, if the opening is small—perhaps not more than a millimeter in diameter—or if it occupies a low position, the simple cleansing method is more likely to fail. But even here a limited myringectomy may suffice to overcome this drawback and so place

these cases on a par with the others. If, however, the pus finds an outlet through the *membrana flaccida*, it is better to proceed at once to an ossiculectomy (including, of course, a myringectomy). The necessity for a Stacke's operation or for a mastoid operation in this class of non-urgent cases becomes clear when both the cleansing method and a simple ossiculectomy (including the anvil as well as the hammer) have proved unsuccessful in arresting the foul-smelling discharge.

As regards the details of the cleansing method it is enough to state here that it consists essentially of only two steps, viz., the removal, chiefly by mechanical means, of all granulation tissue, cast-off epithelium, and detritus from the diseased tympanic cavity or antrum, and the destruction by chemical means of all pathogenic germs. Injections of hydrogen dioxide through variously curved glass tubes play a very important part in the procedure, not simply on account of the germicidal action of this fluid, but largely because the active effervescence, which at once takes place when it comes in contact with decomposing organic material, aids in dislodging the obstructing substances. When once the cavity has been cleared of all these and rendered aseptic, powdered iodoform or one of the more recent antiseptic powders (euphen, aristol, etc.) should be introduced in liberal quantity and allowed to remain there indefinitely. This, in brief, is the mode of treatment which the author terms the cleansing method.

In conclusion, he bears further testimony to the beneficial results which are obtained from the faithful and persistent employment of this method. In the majority of the cases treated in this manner the results have been successful, and he bases this belief not simply upon his own personal experience, but also upon that of other otologists with whom he has had an opportunity to compare notes.

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#### NATURE AND TREATMENT OF MENIERE'S DISEASE.

In an editorial in the *Boston Medical and Surgical Journal* of September 30, 1897, after discussing the causes of Ménière's disease, the writer says:

"As for the treatment of this disease, that by large doses of quinine (for which we are indebted to Charcot, who first formulated it from theoretical considerations) is now the most in favor, at least in the French hospitals. It has been a matter of frequent ex-

perience since Charcot first published the remarkable results which he had himself obtained from this remedy that full doses of sulphate of quinine administered every day for two or three weeks produce a positive amelioration of all the symptoms. During the first few days of the treatment the head symptoms (the tinnitus and the vertigo) are worse, and the vertigo is so intense that the patient must be kept in bed to avoid the falls which he otherwise might receive. The medicine, too, is likely to upset the stomach, so that Gilles de La Tourette advises to prepare the patient by a milk diet before commencing the quinine treatment. It should be the aim to give the patient from seventy-five centigrammes to one gramme (ten to fifteen grains) during the twenty-four hours. This may be given in divided doses, or one-third of the daily quantity well diluted in water after each meal. At the end of eight or ten days the vertigo and tinnitus diminish, in many cases to completely disappear after a few days more of treatment.

"Naturally many obstinate cases are only benefited, not cured, and in all a frequent return to the remedy after a period of suspension is necessary."

#### IRRIGATION IN INTUSSUSCEPTION.

In the *Intercolonial Medical Journal of Australia* of June 20, 1897, A. JEFFREYS WOOD, after detailing a number of cases of intestinal obstruction successfully treated by irrigation, points out that before attempting to reduce an intussusception with water sufficient assistance must be secured: first, an anesthetist who must watch his patient carefully; second, an assistant to keep the funnel full and at the required height; and third, another assistant who will raise the buttocks, hold the tube in position, and prevent the water escaping from the anus. This leaves the surgeon free to watch and gently manipulate the abdomen. It is possible to manage with an anesthetist and one assistant, but the second assistant is of great value if available. The child is of necessity exposed a good deal during the treatment, so that a hot-water bag to lie on, with cotton-wadding coverings for the legs, are necessary to prevent too much shock. The height at which the funnel or irrigator has been held in these cases has been about four feet.

Power, in his recent lectures, mentions the experiments made by Mortimer and Mole on the pressure that the colon will successfully

resist after death. It was concluded from these experiments that a column of water eight feet in height usually ruptured the bowel. On referring to Starr's Text-book on Diseases of Children, it will be found that Ashhurst, of Philadelphia, recommends that the funnel be held as high as eight feet in children, and twenty feet in adults. One American writer relates the reduction of an intussusception where the funnel was carried to the top of the stairs, while the child was on the ground floor. It seems from the American work that the bowel during life is more resistant than it is after death. Safety lies in moderation, and anything from two and a half to four feet will, as a rule, be found quite sufficient pressure to reduce most cases of intussusception.

The presence of a swollen condition about the ileocæcal valve after reduction must not be mistaken for an unreduced intussusception. After trying reduction by hydrostatic pressure, a reasonable time should be allowed to elapse before proceeding to abdominal section, for after recovery from chloroform all the symptoms of obstruction will quickly manifest themselves if the reduction has not been completed. Bilton Pollard relates a case in which he performed an abdominal section after irrigation because a swelling remained in the right iliac fossa. The intussusception was found to have disappeared, but the ileocæcal valve was the site of considerable swelling.

Reduction by air alone is frequently successful, and should be tried in the absence of an irrigation apparatus. Higginson's syringe, the common bellows, or a bicycle pump may be used to effect this purpose, but to attempt the reduction without an anesthetic would be only to court failure.

The tendency that intussusception has to recur after reduction has often been mentioned. One case attending the Children's Hospital three years ago recurred three times in a week, and was finally cured by irrigation without recourse to abdominal section. Many surgeons who advocate laparotomy for intussusception recommend that the operation should be performed early if it is to be successful, but these early cases can be reduced by simpler means, and it is with a view of drawing attention to the success of these means that the writer publishes his cases.

[The hydrostatic pressure recommended by some authors as quoted above is excessive and dangerous. A pressure of two to three feet is sufficient and much more safe.—Ed.]



*THE TREATMENT OF CEREBRAL HEMORRHAGE.*

In a recent issue of *Treatment* BYRAM BRAMWELL, so well known for his able studies in clinical medicine, gives directions for the treatment of this alarming condition. He thinks that at the commencement of an attack of cerebral hemorrhage the first indication for treatment is to try and arrest the bleeding and limit the extravasation. We should try to carry this indication into effect by employing measures calculated to lessen the activity of the cerebral circulation.

The head and shoulders should be raised rather than lowered, an ice-bag should be applied to the head, warmth applied to the feet with the object of dilating the peripheral vessels, leeches may be applied behind the ear, and a drop or two of croton oil administered with the object of producing a brisk watery evacuation. Venesection, bleeding from the temporal artery, compression of the common carotid artery, and ligaturing the carotid artery, on the side of the hemorrhage, are other methods which have been recommended.

The value of bleeding (either from a vein or the temporal artery) has been much debated; the author believes it to be useful and especially indicated in those cases in which the face, head and neck are turgid, the pulse hard, full, and slow, and the left ventricle hypertrophied. Bleeding is contraindicated in those cases in which the pulse is feeble, rapid, or irregular, the heart dilated or weak, and the patient very old or debilitated.

The author has no experience of compression of the carotid, a method of treatment which has been recommended by Professor Victor Horsley.

A brisk watery purge acts in very much the same way as a moderate bleeding, but for the production of a brisk watery purge time is required. Consequently in many cases venesection is preferable. In those cases in which the advisability of bleeding is doubtful, a drop or two of croton oil and an enema may be administered.

The common practise of applying a blister to the nape of the neck is of doubtful advantage. It is extremely doubtful if at this stage of the attack counter-irritation does any good. In the severe cases it is useless, and in the slight cases in which the coma is speedily recovered from it is unnecessary (even if it were beneficial), and it may be a source of discomfort to the patient. If a blister is to be applied at all it is probably

best applied to the shaved scalp between the ears (*i.e.*, over the top of the head). The ice-bag, which he considers of far more importance, may be applied over the top of the blister.

If there is retention of urine, the bladder should be emptied by the catheter at regular intervals. If there is incontinence, the nurse should see that the patient is kept dry and clean; this is a most important point, for the development of a bed-sore is one of the chief dangers in cases which do not prove immediately fatal.

It is doubtful if any internal remedies have much influence in arresting the bleeding. Ergot has been recommended for this purpose. Nitrite of amyl, or nitrite of sodium, is perhaps useful in some cases in which the pulse is hard and tense, but venesection is probably a better remedy. Aconite has also been recommended in those cases in which the pulse is full and bounding.

In those cases in which the coma is gradually becoming deeper and deeper, the pulse (though perhaps full and bounding or hard) slower and slower, the respiration more and more affected—in short, in cases in which the intracranial pressure is evidently steadily increasing as the result of a gradually increasing hemorrhage—the advisability of trephining and tapping the hemorrhagic cavity and so preventing rupture into the lateral ventricles—an event which is certainly and rapidly fatal—should be considered. Such cases are comparatively rarely met with.

The second indication is to attend to the condition of the bladder, and to take means to prevent if possible the formation of a bed-sore. The patient should be placed at once, or as soon as he can be removed without risk, upon a water bed. Care must be taken, too, that the hot bottles which are applied to the feet are not too hot. Owing to the comatose or semi-comatose condition the patient will not of course make any complaint (the nurse has, under such circumstances, to feel for him), and owing to the diminished trophic resistance of the skin, a degree of heat which would not be prejudicial to a healthy person may easily blister and burn the skin of a patient suffering from cerebral hemorrhage.

The third indication is to sustain the vital powers by appropriate feeding, and if necessary by the administration of cardiac tonics and stimulants. It is important to avoid giving anything which is likely to produce vomiting, for the straining which attends the

act of vomiting may reopen the ruptured vessel, or, if the bleeding is still going on, increase it. For the same reason stimulants should be withheld, unless they are absolutely required. If the heart is failing, and the pulse rapidly running down, stimulants must of course be administered even at the risk of increasing or reexciting the hemorrhage.

During the comatose state the administration of food and liquid by the mouth requires to be conducted with great care and caution.

A nutrient enema may be given every four hours, and if necessary it may be supplemented every now and then by a nutrient suppository.

It is unnecessary to say that in those cases in which the sphincters are relaxed rectal feeding cannot be satisfactorily carried out.

During the stage of coma, mucus, saliva, etc., are apt to accumulate in the mouth and pharynx, and to add to the difficulty of the respiration and the tendency to death from asphyxia; for it must be remembered that in some cases the patient dies during the stage of coma from failure of the heart's action, in others from asphyxia and failure of the respiration, in others from the two conditions combined. In others, again, death is preceded or attended by hyperpyrexia.

By attention to position (turning the patient on his side, turning the head to one side, etc.) it is in many cases possible to avoid the accumulation of mucus, etc., at the back of the throat and so to diminish the risk of asphyxia. The relief is, however, in most cases merely temporary. In cases of cerebral hemorrhage in which these conditions are developed the result is almost always fatal. It is very different when we are dealing with the status epilepticus. In that condition the author has undoubtedly in more than one case, by preventing the accumulation of mucus, saliva, etc., in the back of the throat, and so preventing asphyxia, saved the life of the patient.

Provided that the patient can swallow, a teaspoonful or two of milk may from time to time be given by the mouth, but once the bowels have been thoroughly well opened it is better to feed the patient by the rectum. If there is difficulty in swallowing, if the administration of fluids by the mouth produces coughing or choking, the feeding should be entirely rectal. Alcoholic stimulants, digitalis, etc., may be given by the same channel, or strychnine (a drop or two of the liquid every two hours) may be administered hypodermic-

ally, the effect being of course carefully watched.

Possibly in some cases in which the respiration is much embarrassed and death from asphyxia seems imminent, oxygen inhalations might be beneficial.

The main objects of treatment during the first stage of cerebral hemorrhage are, then, to arrest the bleeding and to tide the patient through the stage of coma.

If the patient recovers from the stage of coma, the next object is to prevent and allay the secondary cerebritis.

As the patient recovers from the coma absolute rest should be enjoined. A little liquid food (milk) and water may be given by the mouth; the rectal feeding may be still continued; great attention must still be directed to the condition of the bladder and rectum and to the prevention of bed-sores.

At this stage of the case the author has usually commenced the administration of iodide of potassium—five grains three times daily.

When symptoms indicative of secondary cerebritis (a rise in temperature, headache, muscular twitchings, rambling, a return of the coma, etc.) develop, a brisk purge may be again administered, cold (an ice-bag) re-applied to the head, and bromide of potassium or a combination of bromide of potassium and chloral hydrate given in addition to the iodide.

If during the stage of secondary cerebritis the pulse becomes very quick, feeble, or intermittent, cardiac stimulants—digitalis, strophanthus, strychnine, etc.—must be given; alcohol is probably better avoided. If the pulse tension is high the administration of remedies which depress the force and violence of the heart's action, such as aconite or nitrite of sodium, may perhaps be employed with advantage in some cases in addition to purgation.

As the symptoms of secondary cerebritis subside, the bromide of potassium and chloral hydrate should be discontinued.

After the symptoms indicative of secondary cerebritis pass off, complete rest must still be enjoined until the acute changes around the clot have subsided. The iodide of potassium, with perhaps a small dose of carbonate of ammonium, or tincture of nux vomica, should be continued. During this, the early, stage of convalescence the patient must be carefully fed, the condition of the bladder and rectum attended to, and any cystitis or bed-sores which may have developed treated. At this

stage of the case gentle massage is useful. Faradism of the paralyzed muscles, strychnine, and too active attempts at voluntary movement of the paralyzed parts, all of which may be most useful a little later, should be avoided, or if employed, administered with great caution.

Some authorities recommend the application of the constant electric current to the head—one pole being placed just above either mastoid process. The constant current, by its catalytic action, is supposed to aid the absorption of inflammatory products and to promote the nutrition and restoration of the damaged nerve elements. It is very doubtful if electricity applied in this way is of any real use. If it is employed the greatest care should be taken to use a weak current, and the effects which the current produces on the patient should be carefully watched.

In severe cases of hemiplegia the tendency to the development of contractures should be remembered, and passive movements (more especially of the fingers, wrist, and elbows, for it is at these parts that the contractures are most apt to be developed) carefully and diligently practised.

When there is reason to suppose that the acute changes have subsided—*i.e.*, at the end of six weeks or two months—the treatment appropriate for an ordinary case of hemiplegia may be employed. A more liberal dietary may be allowed; the patient should be encouraged to practise systematic voluntary movements; general tonics, such as quinine and small doses of strychnine, may be given internally; and massage and electricity judiciously and cautiously applied to the paralyzed muscles. It is difficult, the author thinks, to overestimate the value of frequently repeated and systematic voluntary efforts in cases of hemiplegia, and indeed in all forms of paralysis.

The treatment (amount of exercise, etc.) must of course be carefully and judiciously regulated in accordance with the conditions which are present in each individual patient (the severity of the paralysis, etc.), the state of the heart, kidneys, etc., being taken into account.

If the exaggerated myotatic irritability (spastic condition, exaggerated reflex action) which is usually developed is excessive, dilute hydrobromic acid, bromide of potassium, etc., may be administered; in these cases strychnine, nux vomica, and the faradic current are usually better avoided. It is in those cases in which the muscular atrophy is considerable

that electricity and strychnine are most useful. In many cases in which muscular atrophy and myotatic irritability are combined a combination of dilute hydrobromic acid or bromide of potassium with strychnine or nux vomica is, he thinks, useful.

It has been shown that in the ordinary form of cerebral hemorrhage (that due to miliary aneurisms and high blood-pressure in the arterial system, cirrhosis of the kidneys, etc.) it is practically certain that if the patient lives sufficiently long and is not cut off by some other disease or intercurrent complication, a second attack of cerebral hemorrhage will sooner or later occur. A great deal, however, can in many cases be done to prevent and defer a second rupture. Everything which is likely to act as an exciting cause should so far as possible be avoided. It is especially important to reduce the blood-pressure when the pulse tension is excessive, and to avoid everything, such as sudden efforts, mental excitement, sudden exposure to cold, straining at stool, etc., which is apt to produce a rapid rise in the intracranial blood-pressure. A patient who has had an attack of cerebral hemorrhage, however slight, should lead a quiet, routine life; he should be made to realize that he is not the man he was before. If he is a business man, more especially if his business entails much bodily exertion, mental strain, or excitement, he should be advised to give it up if he can by any possibility do so. An attack of cerebral hemorrhage, however slight, is a danger signal which cannot be ignored. Work which entails active exercise, bodily exertion, or mental strain and excitement is in such cases dangerous. The author makes this statement advisedly, well knowing that in many cases it is a mistake to advise a patient to give up his life's work. Some people are only happy so long as they are at work. Some men if advised to give up a busy and active existence for a life of idleness and humdrum routine, more especially if they have no hobbies or sources of recreation to fall back upon, are miserable. In such cases it is usually preferable to allow the patient to continue to work, perhaps in a modified way, than to worry in his idleness. Each case must be judged of on its own individual merits; the temperament of the patient and the nature of the disease have to be carefully considered; the risks entailed by the work and the risks entailed by his idleness and want of occupation have to be weighed one against the other. But after an attack of

cerebral hemorrhage there is in most cases little or no choice.

The diet should be light and nutritious; if the patient is gouty, if his kidneys are cirrhotic, if his blood-pressure is high, a non-nitrogenous diet is best; in such cases iodide of potassium, salicylate of soda, etc., may be given internally. In these cases, and in fact in almost all cases in which a cerebral hemorrhage has occurred, alcohol should be prohibited. A certain amount of tobacco, however, may be allowed. Care should be taken that the skin and bowels functionate regularly and actively. The patient should be well clothed. He should not be allowed to suddenly expose himself to cold, more especially after being in a warm atmosphere. When the arteries are atheromatous special care must of course be taken to avoid any sudden exertion or strain. The amount of exercise which the patient should be permitted to take depends, of course, upon circumstances. So far as the condition of his general health is concerned, a certain amount of gentle, walking (outdoor) exercise is beneficial; but sudden exertion, running for trains, straining at stool, etc., anything which produces overfatigue, anything which places a sudden strain on the cerebral vessels—and in this connection mental agitation and excitement is probably quite as prejudicial as too violent physical exertion—should be rigidly avoided.

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#### LARKSPUR POISONING IN CATTLE AND SHEEP.

From the observation of several cases of larkspur poisoning which happened in Montana early in the spring, says Dr. M. E. KNOWLES, the State veterinarian, at a time when the blossoms and seeds had not yet been produced by the plants, there seems to be no doubt that the poisonous principle in larkspur is distributed throughout the whole plant (roots, leaves, flowers, and seeds), and therefore poisoning may occur at almost any time during the life of the plant. A number of serious and extensive losses among both cattle and sheep have come under his observation in Montana during the past three months, the most serious among sheep. He ascertained upon close investigation that cattle and sheep were most likely to eat the plant and become poisoned when they were on a range short of grass, or when turned immediately into a locality while hungry and in a condition to eat any plant in sight. The common symptoms of poisoning in sheep and

cattle are manifested first by the animal straying behind the herd and appearing dull and indifferent to its surroundings, but if suddenly startled it will walk in a directly straight line until it meets some obstruction, when it probably falls, makes but few struggles, but lies remarkably quiet under the influence of the poison. There is rarely any bloating, but in nearly all cases there are dribbling of saliva from the mouth, champing of the jaws, and frequent attempts at swallowing.

The treatment most successfully applied has been by pouring water of ammonia on to a rag or sponge and holding the same to the animal's nose until it fully inhales the fumes of the ammonia; it is sometimes necessary to pour five or six drops of ammonia into the nostrils. The administration every ten or fifteen minutes to sheep of a teaspoonful of ammonia water in half a cup of water, and the administration of alcohol (in tablespoonful doses) diluted with three times this quantity of water, every fifteen or twenty minutes, will be found beneficial when ammonia does not promptly relieve the animal. Where it is possible, and the drug is accessible, a hypodermic injection of a sixtieth of a grain of atropine sulphate to sheep and one grain to cattle will bring about a cure or relieve the poisoning in a rapid manner, often reviving them when they are apparently beyond help. Digitalis and tincture of nuxvomica in small doses are also useful and frequently bring about a cure very promptly.—*New York Medical Journal*, Aug. 21, 1897.

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#### ON THE USE OF SULPHATE OF QUININE IN THE TREATMENT OF INCOMPLETE ABORTION.

SCHWABE, in a paper published in the *Medical Chronicle* for July, 1897, says the treatment to be adopted in cases of incomplete abortion is still a matter for discussion. Some writers advise an expectant plan with rigid antisepsis of the vagina, unless the symptoms of hemorrhage or infection supervene, in which instance the uterus must be evacuated at once. Others, on the contrary, consider that placental retention, partial or complete, is always a dangerous condition, and are in favor of immediate intervention in every case of incomplete abortion. The author considers that, in the vast majority of cases, it is wise to evacuate the uterus as early as possible. He then proceeds to discuss the various methods of emptying the uterus at our

disposal. He points out that uterine douches, tampons, and exploration of the uterus with the finger or curette are by no means free from risk. The principal drugs acting on the uterine muscle are ergot and quinine. The former is, however, hardly advisable, as it tends to cause contraction of the cervix and retention of products *in utero*.

Sulphate of quinine is considered by Schwabe to possess a distinct "oxytocic" action. It produces intermittent uterine contractions resembling the physiological ones. It does not, however, appear to possess the power of initiating uterine action, and will not produce abortion unless uterine contractions have previously commenced.

In this paper Schwabe gives the results of seven cases of incomplete abortion treated by the administration of quinine. In every case the placenta was expelled spontaneously, at intervals varying from half an hour to fifteen hours after receiving the dose—the average time was four and a half hours. In three cases the placenta had been retained three to four days, and in each instance was expelled in a few hours.

The dose is fifteen grains, given in two portions of seven and a half grains each, taken at ten-minute intervals. Usually within a short time uterine contractions, as shown by pain, are set up.

Quinine is by no means a new remedy for uterine atony, though opinions as to its usefulness have been very much at variance. The author acknowledges that in some of the cases no effects followed the administration.

Schwabe's conclusions are briefly as follows: (1) The retention of products in the uterus after abortion is serious, from the risks of hemorrhage or infection; steps should be taken to facilitate expulsion as soon as possible. (2) Digital or instrumental means may be inefficient or dangerous. (3) Sulphate of quinine has a definite stimulating effect on uterine contraction. (4) It is quite harmless; if it fails, other measures may then be adopted. (5) It should be prescribed if the placenta is retained six hours after the fetus, or earlier if hemorrhage is present.

In the discussion which followed the reading of this paper M. Cordes (Geneva) stated that he had used quinine in this condition for some time, and confirmed the views of M. Schwabe. It was pointed out, however, that to obtain reliable evidence as to its value, the cases in which quinine failed to act should also be recorded.

[The Editor has published an article in the GAZETTE during the current year which sought to prove that quinine does not possess any such oxytocic influence as relied upon by Schwabe.]

#### A STUDY OF THE PHYSIOLOGICAL ACTION OF HYDROCHLORATE OF EUCAINE.

In the *Bulletin of the Royal Academy of Medicine of Belgium*, No. 4, 1897, VER EECHE, after a full experimental study of the physiological action of hydrochlorate of eucaine, sums up the work on which he has been engaged as follows: (1) Hydrochlorate of eucaine in the frog determines successively excitations, convulsions, and paralysis; the latter is of peripheral origin. The return to the normal state is accompanied by convulsions, and later by hyperexcitability. The fatal dose is 0.16 grammes per kilogramme. (2) In the warm-blooded animals hydrochlorate of eucaine primarily produces excitation, which is followed by convulsions, and finally death from asphyxia occurs. There is no paralyzant dose. The fatal dose in the guinea-pig is from 0.049 to 0.052 grammes per kilogramme. There is no cumulative action of the poison; on the contrary, the organism may accustom itself to increasing doses of the drug. Cocaine has twice the toxic action which is possessed by eucaine. (3) Hydrochlorate of eucaine acts on the heart principally by paralyzing the intracardiac motor center; secondarily it alters the muscular fibers of the heart. (4) Hydrochlorate of eucaine lowers the blood-pressure by diminishing the peripheral resistance. (5) Hydrochlorate of eucaine directly stimulates the respiratory center in the medulla. The paralysis of the respiratory center in cases of fatal poisoning is not the result of the direct action of poison, but is due to asphyxia, which in its turn is caused by an excess of carbon monoxide in the blood. (6) Eucaine increases diuresis, accelerates nitrogenous, phosphorous, and chlorous metabolism; it produces glycosuria, but only during the presence of intense convulsions. (7) Hydrochlorate of eucaine does not appear to eliminate itself by the kidneys; on the other hand, it probably undergoes a chemical decomposition in the economy. (8) Hydrochlorate of eucaine, instilled in the conjunctival sac, first produces anesthesia of the conjunctiva, and finally of the cornea, at the same time that it rapidly lowers the intraocular pressure. (9) Hydrochlorate of eucaine

reduces the vitality of the red blood corpuscles and produces fatty degeneration of the heart and of the involuntary muscles. (10) Chloral hydrate diminishes or stops the convulsions produced by eucaine. Chloralization will allow the administration of doses of eucaine which are beyond the fatal limit. (11) The antagonism between hydrochlorate of eucaine and chloral hydrate is not reciprocated.—*International Medical Magazine*, August, 1897.

#### PAROXYSMAL TACHYCARDIA.

In a recent issue of the *Bristol Medical-Chirurgical Review* P. WATSON WILLIAMS contributes an article on this topic. After discussing the general aspects of the condition he states that in his opinion the results of treatment, on the whole, are eminently unsatisfactory in controlling or arresting the actual attacks. The writer has already remarked that in one severe case the only drug that in any way seemed to benefit the patient was digitalis, and that in other cases digitalis had given good results. Bouveret states that digitalis has proved of only moderate value. Oettinger, keeping his patient in bed, found the pulse improved and the quantity of urine increased under digitalis; but Pye-Smith has found digitalis and strophanthus "most disappointing in these cases. Absolute confinement to bed in the recumbent posture for a length of time led to a slowing of the pulse, and often to complete cure." Yet the author's own experience and a consideration of recorded views of others tend to the conviction that although digitalis has but a limited action in controlling or aborting the actual attacks, it is the most useful drug for improving the circulation in the intervals between the severe and prolonged attacks. When the mitral valve has become incompetent from secondary dilatation of the heart, when the urine is deficient in quantity and albuminuria has occurred, when anasarca supervenes and the respiratory function is embarrassed, then we shall find that digitalis in some form affords the best chance of restoring the failing circulation, and improving the heart generally.

Some have given morphine with advantage—at least, it sometimes calms the patient without cutting short the attacks. Oliver considered he had cured his patient with belladonna.

Caffeine, nitrite of amyl, and nitroglycerin have been tried with no result. Sometimes a

strong dose of brandy or whiskey stops an attack, and in Nothnagel's case the attacks were arrested by deep inspiration.

In several cases faradization of the vagi has been tried, and failed to have any effect; but pressure on the vagi in the neck, and in one case compression of the thorax, would stop the attacks. These proceedings have been tried in other cases, however, and failed.

It is important to attend to the general health, and especially to rectify any gastric disorder; anemia should be treated with iron and general tonics. Tea, coffee, smoking, undue exertion or excitement, and anything which tends to excite the nervous system, should be carefully avoided.

#### CHELIDONIUM MAJUS IN CANCER.

The *Chelidonium majus*, or tetterwort, is when given internally a drastic cathartic. Applied locally it is a strong irritant and has a reputation in the cure of warts and skin diseases. It has recently been tried in inoperable cancer of the uterus by certain German surgeons (who injected the extract into the cancer tissue with a syringe) and been rejected by them as useless.

In the *Centralblatt für Gynäkologie* of July 31 Dr. Frendenberg reports some not so unfavorable cases from the service of Dr. Landon. His method was to apply a fifty-per-cent. solution of the extractum chelidonii upon cotton wads, directly against the surface of the cancer mass or pressed into its hollows. This method had the advantage of being painless. He denies that it checks the inward extension of the cancer or prevents metastasis. He observed, however, that when pressed thus gently with a tampon against the cauliflower masses it softened them down so that their sites were transformed into craters. Moreover, as a result of the applications a very decided mitigation of the horrible odor was obtained. The hemorrhage from the cancer was also controlled by the application in some cases.

For dilution of the extract use weak antiseptic solutions. If the tampons so wetted are pressed hard in for the control of hemorrhage or the compression of vigorously growing masses, they must be changed by the doctor daily; otherwise a string may be attached by which the patient removes them next day, coming to the physician every third or fourth day, and irrigating herself in the interval.—*Maryland Medical Journal*, Aug. 28, 1897.

ON THE CUTANEOUS ABSORPTION OF  
IODINE, IODOFORM, AND IODIDE  
OF ETHYL.

In the *Bulletin Général de Thérapeutique* of May 15, 1897, LINOSSIER and LANNOIS, of Lyons, contribute a paper upon this subject, first pointing out that the application of tincture of iodine to the skin may be followed by the appearance of minute quantities of iodine in the urine; and they then quote Rabateau, Röhrig, Binz and others as responsible for this statement. The question arises, How does this absorption take place? Does iodine as a volatile body pass through the skin and enter the blood, or does it enter the system by its vapor being inhaled through the lungs? These authors have already proved in the case of guaiacol and salicylate of methyl that these substances pass through the skin with great ease. In the experiments which they carried out they applied these various iodine compounds in different ways to the skin, in some instances arranging the application in such a way that it was impossible for it to pass into the air which the patient breathed.

As a result of their studies the authors conclude that the earlier investigators were right in asserting that iodine is absorbed from the cutaneous surface, that it is not so actively absorbed if it can escape into the air as when it is confined to the skin by means of a bandage, and that the maximum absorption occurs immediately after its application. They also conclude that the local destruction or alteration in the skin which is produced by the application of the tincture of iodine does not interfere with absorption, but on the other hand distinctly aids it. The absorption of iodine from the skin, however, is so uncertain and irregular that this means of medication cannot be resorted to when we desire to influence the general system by this drug; neither can iodoform nor iodide of ethyl be used for this purpose, as the iodine which they contain is not absorbed in sufficiently large quantities from the skin to be of any value.

IMPRESSIONS OF A YEAR'S GYNECOLOGY  
IN GERMANY.

FOURNESS BARRINGTON in the *Australasian Medical Gazette* of July 20, 1897, summarizes his impressions in gynecology as follows:

As to vaginal hysterectomy he personally assisted at forty-three operations—twenty-five for carcinoma uteri, ten for pyosalpinx, four for myoma uteri, two for prolapsus uteri,

one for hyperplastic endometritis, one for chronic inversion of uterus.

From consideration of these operations, performed by various surgeons, the points that seem to command the best results were these:

1. Circularly incise vagina; define lower limit of bladder, and free it and ureters from uterus before attempting to place a ligature on broad ligament.

2. Open posterior cul-de-sac, and insert rolled sterilized gauze tampon to prevent prolapse of intestine into wound. Hemostasis insured by ligating together, and cutting in sections vagina and peritoneum circumscribing cervix.

3. Secure broad ligaments in sections by carefully prepared catgut ligatures tied very tightly, and in cases of carcinoma remove uterus by direct gradual traction rather than through posterior fornix, to prevent peritoneal contamination. The use of silk ligatures always leads to suppuration, and the process of tugging them away, which often has to be resorted to, has little to commend it.

4. Fix stumps of broad ligaments in angles of vaginal incision, and sew up completely rent in vaginal roof, using catgut, thereby dispensing with peritoneal drainage.

Certainly, no operation for fixation of a non-adherent uterus should be carried out until means directed towards endometritis, restoration of pelvic floor, and retention for some time in its proper position have proved futile.

Finally he submits the following views:

That when ablation of the myomatous uterus is undoubtedly called for, pan-hysterectomy is preferable.

Multiple fibroids, either edematous or cystic, and demanding abdominal section, will be best met by ablation of the appendages, when they are completely removable. Conservative methods in diseases of the appendages can with advantage in suitable cases be more frequently carried out by abdominal and vaginal section.

That in every gynecological operation the aim should be at a perfect aseptic technique, and to attain this object methods should be controlled from time to time by culture experiments.

That irrigation and drainage are valuable safeguards against sepsis and hemorrhage, and should be frequently resorted to.

That Trendelenburg's position is an immense help in intrapelvic surgery generally,

and a moderately free incision must be super-added.

That vaginal hysterectomy in carcinoma should be invariably complete, and that ligation of the broad ligaments with catgut, as being readily absorbable, and complete closure of the vaginal roof, with extraperitoneal treatment of the stumps, is the best procedure.

That the suprapubic route is preferable to vaginal hysterectomy for ablation of chronically diseased adnexa, which, if suitable for removal from below, should be dealt with by anterior colpotomy, with retention of the uterus, which is curetted and drained.

Anterior colpotomy is a valuable addition to surgery, but in the presence of dense adhesions laparotomy is preferable; but it is unlikely vagino-fixation of the uterus will retain a place in surgery.

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#### THE TECHNIQUE OF INTRACRANIAL SURGERY.

TIFFANY presents an interesting contribution on intracranial surgery in the *Annals of Surgery* for September, 1897. Speaking of the difference between operations for traumatic and pathologic causes he says the two should be considered quite separately; indeed, comparison between them is almost impossible. In traumatic cases operation is undertaken as a matter of necessity, suddenly, perhaps with instruments not quite suitable, but certainly without delay, the condition of the patient not permitting it. There has been no previous preparation of the patient. His general condition is unknown. No preparatory treatment is possible. The elements of sepsis are often present, not only upon the surface, but perhaps thrust into the tissues by the traumatism for which the operation is undertaken, and infection may have already occurred within the head. The condition of the kidneys may be mentioned, as a matter of which the operator must be in ignorance; for even though the urine be examined immediately after the injury and before the operation is undertaken—and this should always be done—yet if the patient has been transported a certain distance in cold weather, or the skin surface has been largely uncovered, as is not unusual after an injury, albumen will generally be present, and possibly also casts may exist; and so an accurate knowledge of the condition of the kidneys is wanting. The details in operative work, also, are often obscure, and

landmarks obliterated, both within and without the skull. Finally, the head is opened, in traumatic work, as circumstances permit or seem to indicate. The head may have been already opened before the case is seen by the surgeon, who is forced to do patch-work.

In operations for pathologic conditions, on the other hand, the reverse of what has been said exists. The proper time is chosen; all things are prepared; the proper light obtained; asepsis is secured; there is a due regard for both local and general cleanliness; not only has the condition of the internal organs been investigated, but they have been made to work, and work smoothly; a well and carefully considered operative procedure is carried through after due study and consideration, and all things necessary are at hand. The operation then is undertaken in the best way for the patient's welfare. It is proper, therefore, to draw a hard and fast line between the results of operations undertaken for traumatic and pathologic conditions, not that excellent work is impossible in traumatic cases, but the very fact of the patient's having been subject to injury may take out of the surgeon's power the ability to obtain certain conditions which are essential to success, and should exist, but may not—cleanliness, for instance.

It is not easy to clean a head, and it is still more difficult to prepare a portion of a head and operate so that cleanliness shall obtain. It is best, therefore, that the whole head should be prepared and cleaned. This applies to all cases, unless of a very minor character.

In traumatic cases the head is to be shaved and the skin cleaned with green soap, hot water, nail-brush, and carefully scrubbed. The ears should be cleaned out and filled with sterile cotton. The eyes should be closed with pads of sterile cotton. The scrubbing should be done not only upon the surface, but, if a wound exist, it should be scrubbed likewise, and an effort made to get out any dirt which has been forced beneath the skin; punctured wounds should be laid open; tracks beneath the skin should be opened and scrubbed; the edges of irregularly bruised tissue may be trimmed away and a clean surface obtained. Where coal-dust or grease has been forced beneath the surface, scrubbing with a nail-brush and soap and washing with ether and alcohol will often be sufficient to obtain a clean surface. Dirt ground into the surface or edges of broken



bone can be scraped away, or nibbled away with forceps, so as to be gotten rid of. After cleansing the head for traumatic operations, a towel wrung out in corrosive sublimate solution, or sterile water perhaps, can be used as a cover for the prepared territory until instruments and other things are ready. In preparing a patient for an operation undertaken for some pathologic condition (not traumatic, of course) the author always prepares the patient a day before the operation, and then again just prior to operating, and sees no reason to depart from this habit. An alkaline solution, bicarbonate of soda, he has found useful to remove dandruff from the scalp, but he generally uses green soap. Shaving and scrubbing with green soap, or a poultice of green soap applied over the surface after shaving and left on for a couple of hours and then scrubbing afterwards, is efficacious. He removes the green soap with alcohol, then ether, and then has the clean scalp tied up in a corrosive sublimate solution until the following day; a repetition of the cleansing as already described gives a clean surface upon which to operate.

As the brain is to be covered in after the operation, a large osteocutaneous flap, the base turned towards the blood-vessels, is probably the most effective way of uncovering the brain. It should be cut in one piece and then broken at the base so as to permit of turning down. This breaking down at the base is much assisted by cutting across the bone with sharp forceps, or otherwise, and it should be so cared for during operation that the skin and bone are not torn asunder; it may be necessary to envelop it in a cloth wrung out in hot sterile salt solution. The cutting of the bone is to be done by the instrument with which the surgeon is most familiar—the trephine, rapidly revolving saw, chisel and mallet, all have their advocates. Jarring the head is probably the objection most frequently raised against the last mentioned tools. They are, however, the tools with which Tiffany is most familiar and which he prefers. Should the opening not be large enough in the skull, there should be no hesitation about cutting away the borders of the opening until sufficiently large. For this purpose rongeur forceps seem to leave little to be desired.

There is a difference between the sides of the skull and the top, for bone need not be put back in the temporal fossa, since, thanks to the dense temporal fascia, there is not much sinking in; it is otherwise at the top

and front of the skull, as bone there wanting results in a deep depression. The time which is consumed in exposing the brain is largely the result of the bone-cutting. Twice it has been the author's fortune to operate upon heads where, at previous operations, bone has not been replaced. It was very easy to open these heads, and the operation was done with great rapidity. It is therefore a matter to be thought over and carefully considered whether, when it becomes necessary to operate within the head, it may not be expedient to raise a large flap, remove the necessary bone, replace the flap, and allow it to heal. A month or two afterwards the surgeon will operate to remove the pathologic condition present, and can do so rapidly, bone not obstructing. The removal of a piece of cranium and replacement of the skin-flap is accompanied by so little danger that this plan offers advantages, especially so when the prolonged bone-cutting, which is necessitated by an intact cranium, is to be followed by a long piece of intracranial surgery.

It is worth while remembering that, opening the skull, even in incurable cases, may diminish pain and optic neuritis. The dura is to be divided and turned aside as a flap, the line of division being about one-third of an inch internal to the bone section, so as to permit of suturing and replacement. Generally speaking, the dura is to be respected and treated as are other serous membranes, and with no more consideration.

From the skin hemostatic forceps have sufficed to arrest hemorrhage. With a transverse bar at the top, a T-shaped blade, a large area of skin would be pressed upon and so bleeding be better arrested; perhaps the T-shaped blade could be covered by rubber with advantage. By encircling the cranium with a rubber band he has not had satisfactory results. Hemorrhage from the bone during the cutting may be arrested by Horsley's putty, or pressure with dry gauze. By crushing in the edges of the bone with heavy forceps bleeding from the diploe has always been arrested. From the dura, a fine thread passed around the artery and tied has sufficed to stop bleeding. From veins the same may be said. Where hemorrhage comes from a sinus, he has arrested bleeding in several ways: by suturing the wound in the vessel with a curved needle, passing the thread around it and tying it; by gauze pressure—these methods have been sufficient in his hands. After turning the dura back and ex-

posing the surface of the brain vessels are to be sought for and tied carefully, without dragging, by two threads, and divide between. Forceps will generally tear off, and should not be employed, save very temporarily. It might be that serrefines would be of use.

It is worth while to call attention to the fact that tumors within the brain will push up sulci from below so that vessels can be tied more easily than in the normal brain. A growth should be encircled by ligatures under these circumstances. The material used in ligating will be at the surgeon's pleasure. The author uses very fine sterile silk. Finally, there is that form of hemorrhage which may come from the exposed surface after removal of a growth, and is usually denominated parenchymatous. There is nothing so effectual in arresting this as pressure with gauze. It may be that the gauze can be taken away at the end of the operation; usually, however, it is to be left protruding and removed in two or three days. In a recent case under the author's care the gush of blood after the removal of the tumor was enormous, yet ceased promptly on packing.

In regard to the anesthetic: special indications for one or the other anesthetic lacking, the writer employs chloroform, intracranial congestion being probably lessened thereby. It is a well known fact that under ether the face becomes congested; it is reasonable to presume that a similar condition may obtain within the skull.

Tiffany has a cast of the brain at hand to refer to while performing operations on the cranium, in order to compare it with the exposed area. Electrical stimulation of the exposed area by the methods at present in vogue gives most efficient aid to the operator.

When operating for a tumor of the brain, which is covered by the cortex, the color and consistency of the exposed area may give information, but an incision will probably be of advantage. Certain growths have the same consistency as the brain, and have been traversed by needles without recognition, hence color and consistency failing to be recognized, probably an incision into the brain is best; touch followed by incision, if the tumor does not present, is a far better way than touch followed by puncture, unless a cyst is recognized as present.

Of the tumor it is scarcely necessary to speak, but the removal of the cortex is a matter about which much can be said. Undoubtedly

in many cases of tumor, the cortex is greatly displaced, but it is also probable that where the cortex is removed restoration of function, to a certain extent at all events, will follow. Circumscribed growths may be taken away by spoon, finger, knife, etc., but infiltrated growths, while they may be taken away, so far as can be recognized by the operator, give most unsatisfactory ultimate results, recurrence being the rule. The dura, being removed, should be replaced by gold foil, to prevent adhesions between brain and scalp.

Intracranial sutures of silk are advantageous. To obtain a bone flap where it is thought necessary, when the natural bone is wanting, different expédients have been made use of: thus the periosteum from the tibia has been transferred to the head; the outer table of skull, while connected with the skin, has been fashioned as a flap to turn over and cover the defect; the removed bone, perforated with holes so as to permit of drainage, has been used, etc. For the skin he always uses subcutaneous sutures of silkworm-gut. A voluminous dressing of sterile absorbent gauze has done all that is necessary. He has not closed completely a head opened for an extensive operation, save in one or two instances, and here he has had occasion to regret his method. He drains by means of a piece of silver wire hooked in the lower angle of the wound, and believes that his patient's condition will be improved thereby. The time when dressings are to be changed will vary with the condition of affairs present; and it is scarcely necessary to call attention to the fact such re-dressing is to be carried out with the precautions for cleanliness which characterized the first dressing.

#### *JONNESCO'S METHOD OF NEPHROPEXY.*

This is described and illustrated in the author's new journal, the *Revista de Chirurgie* (No. 4), published at Bucharest. After an incision parallel to the twelfth rib, or if too short the eleventh, the kidney is brought up to the wound. The adipose capsule is detached and turned back from the entire outer side of the kidney, which is then fastened to the rib by three double silk threads, or better still by two U-shaped pieces of silver wire, each end inserted separately with an Emmett needle passing through the skin, through the M. sacrolumbaris, the lower aponeurosis, and through the fibrous capsule on the rear side of the kidney, through the renal parenchyma 1.5 centimeters from the

outer side of the organ, then through the fibrous capsule on the other surface, through the periosteum of the twelfth rib, and finally out again through all the layers, three centimeters beyond the wound. The ends of the threads are tied over a long roll of sterile gauze on each side of the wound, and the organ is thus fastened to the rib at each end and in the middle, with the ureter in its normal position. He has performed this operation ten times on patients and many times experimentally. He is careful to keep his patient in bed twenty days, and removes all the threads or wires the tenth day, thus obviating all the inconveniences of permanent threads. The adhesions between the decorticated parenchymatous surface, the rib and the muscular tissues, form a remarkably firm support, and "all the disadvantages of other methods are absent."—*Journal of the American Medical Association*, Sept. 18, 1897.

#### DISEASES OF THE GLOSSO-EPIGLOTTIC SPACES.

J. F. BARNHILL (*The Laryngoscope*, vol. iii, No. 2, 1897) presents an article on this subject because: First, the subject being comparatively new, little is said concerning it in text-books; and medical journals have had fewer articles concerning this locality than about others of less importance. Second, the rather large number of cases he has seen who have received treatment for catarrhal conditions at the hands of specialists of experience, the patients having been skilfully treated in a limited way, every pathological condition having received careful attention, from the *alæ nasi* to the cricoid cartilage, excepting the spaces between the tongue and epiglottis; and yet these patients considered themselves uncured, complaining of many or all of the symptoms enumerated in the body of the author's paper. Third, the frequency of the diseases of the spaces, and the importance of recognizing and appropriately treating the same.

The pathological conditions found in these fossæ are, giving them somewhat in the order of their frequency, hypertrophied lingual tonsil, varicose veins, papilloma, fibro-sarcoma, and carcinoma. Syphilitic and tubercular ulcerations are found here. The spaces, particularly when occupied by a growth of any kind, are quite subject to acute and chronic inflammatory conditions.

As to symptoms, a considerable number of patients under the writer's care for other ail-

ments have been observed to have greatly enlarged lingual tonsils without any complaint whatever, and it has not been uncommon to find hypertrophies in these spaces large enough to infringe upon or even overhang the epiglottis, with the patient disclaiming all knowledge of anything ever having been wrong with the throat. Others with much smaller and comparatively insignificant growths complained of many or all the symptoms here enumerated. He accounts for this in two ways: first, in persons of highly sensitive nervous systems, the slightest touch of a foreign body against the hypersensitive epiglottis will excite the reflex centers of the air tract in a degree that would not be possible in one whose nervous tone is normal; second, the conformation of the epiglottis in many cases is such that instead of standing up and away from the base of the tongue, as it normally should, it curls unduly forward, projecting its crest directly against the base of the tongue and over the glosso-epiglottic spaces, thus unduly infringing upon the smallest nodule of lymphoid tissue, and giving rise to symptoms equal in severity to those found in cases where the spaces are filled with tumors many times larger, but with normal epiglottis.

A feeling of irritation, fulness, and a disposition to clear something from the throat is a very constant symptom. Cough, varying in degree from an occasional dry hack to the most distressing and frequent paroxysms, is common. Such violent coughing sometimes ruptures one or more of the venous radicles of the spaces, which are often varicose, and particularly in patients past middle life, thus giving rise to a smart hemorrhage, which as a matter of course greatly alarms the patient and may prove perplexing to the attending physician, if he be not skilled in the use of the laryngoscope.

Many cases cough but little, and feel but slight annoyance, except at the time of taking food, when there are violent paroxysms of coughing, sometimes producing vomiting. Functional heart disease is often much aggravated and sometimes wholly caused by disease of these spaces. Hysteria usually accompanies these cases.

Many cases are nervous or anemic, and a considerable percentage of the female patients have menstrual disorders. The peculiar nervous state at the menopause, together with the increased tendency toward varicose veins, causes suffering at this period from conditions that had before gone unnoticed.

Such cases require constitutional treatment appropriate to each.

Tumors of the spaces, which have been so innocent as to be unnoticed by the patient, should be let alone. Where annoying symptoms are present, extirpation of any hypertrophy should usually be advised. Surgeons differ as to methods of removal, some preferring excision, some the wire loop or galvano-cautery, while a few believe caustics and iodine compounds quite sufficient. The author always uses the snare when the growth projects sufficiently to be readily engaged by the wire loop. When the tumors are flat or small he employs Myles' lingual tonsillotome. Patients complain much less of pain, and there is very much less inflammatory reaction and general distress when the snare or tonsillotome has been used. The cure is also more rapid. He uses the electro-cautery on varicose veins, very small hypertrophies that are difficult to engage in the snare or tonsillotome, and for other reasons which rarely arise. The cautery gives rise to but very little pain at the time, the part being thoroughly cocainized, but the after-pain and distress usually arising from the inflammatory reaction set up in the loose tissue of the spaces has been in the author's hands the source of such great annoyance that he now resorts to this method only in selected cases.

When electricity has for any reason been used, he has observed the least trouble and the best results when he employed a blade or needle-pointed electrode which could be plunged into the center of the growth and the destruction thus be accomplished from the center outward. As a matter of course, great care should be exercised not to use the cautery too freely, one or two nodules only being punctured at a sitting, and the greatest care exercised in avoiding injury to neighboring healthy tissues.

The author has never used chromic or other acids as destructive agents in this region, knowing the difficulty with which the space is rendered sufficiently dry to prevent spreading of such agents to surrounding tissues. With one exception he has abandoned the use of the various iodine compounds and other so-called sorbafacients, their action, if at all beneficial, being so slow that patients either cease their visits or ask to be relieved by the more rapid method of extirpation or destruction. The exception referred to is the iodine and carbolic acid compound recommended by Chappell. This preparation has

the decided merit of sticking to the spot to which it is applied and not spreading to adjoining healthy tissues. Its application is about as painful as the more radical methods, and requires so much longer time to accomplish its purpose that one is only justified in using it with timid patients who are afraid of all "operations."

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#### THE OPERATIVE TREATMENT OF OCCLUSION OF THE JAWS.

J. EWING MEARS (*Journal of the American Medical Association*, Sept. 18, 1897) in a paper on this topic states that the affection occurs in two forms—the spasmodic or temporary, and the chronic or permanent. The former usually occurs in connection with some condition which affects the motor filaments of the third division of the fifth nerve, causing spasmodic contraction of the elevator muscles of the lower jaw. Among the causes may be enumerated the delayed or difficult eruption of the third molar or wisdom tooth of the lower jaw, the development of tumors from the external surface of the ramus and body of the lower jaw, alveolar abscess in connection with the posterior teeth, necrosis of the jaws, suppurative tonsillitis; and it may follow operations on the lower jaw when performed in the molar region. It may be proper to include tetanus under the temporary form of jaw-closure. This form differs from those described above by reason of the fact that the jaw-closure is one among other symptoms which are present.

The treatment of the temporary form of jaw-closure consists in the removal of the causes. When dependent upon the impeded eruption of the wisdom tooth, the mouth should be opened by levers, the patient being placed under the influence of an anesthetic, and the second molar tooth should be extracted so as to afford space for the third molar, or as the latter is not infrequently found to be an imperfectly developed tooth, the offending organ should be removed. Where tumors, necrosis and alveolar abscesses exist as causes, the treatment is obvious. For the relief of trismus, which is so prominent a symptom of tetanus, remedies which are efficient in controlling the general condition will afford relief.

Under the improved methods of treatment the prognosis of jaw-closure may be regarded as favorable. Even in the most inveterate cases, in which the entire buccal spaces on both sides have been obliterated by masses of

nodular tissue, operative treatment promises relief.

Having failed by the employment of the different methods in vogue, the author was led, in a study of the character of the pathologic structure which existed and of its marked tendencies to union after section as well as its reproductive power, to the adoption of a method by which normal mucous membrane should form behind the cicatricial mass. It was evident that if such a line could be formed the pathologic tissue in front could be severed without fear of union occurring, and the divided portions could be kept separated and their nutrition modified. In performing the operation a long-handled, slightly curved needle armed with a strong aseptic twisted-silk ligature of sufficient length is introduced at the angle of the mouth on the inner surface and carried carefully into the space between the cicatricial mass and the buccinator muscle, and the point made to emerge at the position of the last molar tooth of the lower jaw—at which point the posterior border of the cicatricial tissue can usually be felt. The ligature is now seized with the toothed forceps, the needle withdrawn, and the ends tied, the ligature lying loosely in the channel thus formed. As the intention is not to divide the mass by the ligature it is permitted to remain without traction, the formation of the canal lined by normal mucous membrane being facilitated by drawing the ligature backward and forward, and thus destroying any adhesions which may form. The introduction of a probe curved so as to easily take the direction of the canal is also of service, and gives the surgeon information as to its condition. When the probe passes readily and smoothly and without provoking bleeding, it may be assumed that the canal is lined by normal mucous membrane. When this condition is established beyond a doubt, usually at the end of three weeks, a grooved director curved in a proper manner is introduced into the canal and a blunt-pointed bistoury is carried along the groove, dividing the tissue as it advances. This being accomplished a gag is placed between the teeth and the mouth forced open to its widest extent. The buccal space is then packed with five-per-cent. iodoform gauze, which is replaced the third day, the cavity being thoroughly cleansed with a disinfecting solution at each dressing. At the expiration of the second or third day the gag should be used, opening the mouth to its widest extent, and each day this should be

practised until there is evidence of the formation of normal membrane lining the buccal spaces, and the patient can without the aid of the gag open the mouth freely; the iodoform packing may be diminished as the reparative process advances. In some instances the author has provided patients with a gag and advised its use from time to time, in order that the newly formed membrane may be kept pliable. In a few months—three to four—its use may be dispensed with. This method overcomes all the objections to the plan which involves the creation of a false joint in front of the cicatrix, and secures as perfect a result as possible.

In conclusion Mears states that jaw-closure due to the presence of cicatricial tissue in the buccal spaces can be most efficiently relieved by the formation of a canal lined by normal membrane, by means of a ligature passed behind the cicatricial mass; reunion of the divided tissue and reformation of the nodular tissue not occurring after division when this canal has been formed.

Synostosis of the temporomaxillary articulation, producing jaw-closure, can be best relieved by removal of both coronoid and condyloid processes with the upper portion of the ramus, thus affording ample space for the formation of a freely movable false joint. The operation should be performed through the mouth, thus avoiding disfiguring cicatrices.

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#### MIXED TUMORS OF THE SOFT PALATE.

BERGER (*Revue de Chirurgie*, No. 7, 1897) concludes a paper on this subject with the following propositions:

The mixed tumors of the soft palate present a distinct group showing well marked anatomical and clinical characteristics.

These tumors originate in the glandular layer of the palate and are always encapsulated. They are epitheliomatous in nature, with a varying framework.

In some cases the epithelial elements are deposited in the manner characteristic of adenomata; in others of that noted in epitheliomata included in a fibrous, mucous, or cartilaginous framework. These growths are essentially benign; neither in course nor in termination do they resemble true epitheliomata. This benignity is attributable to the distinct limitation of the epithelial hyperplasia by the mucous or cartilaginous capsule. None the less these tumors can be distinguished from sarcoma only with diffi-

culty, since the latter growth in the region of the soft palate may be slow in its progress, distinctly encapsulated, and relatively benign.

The sole danger connected with these tumors is their increase in size and consequent interference in function. Their extension toward the pharynx, the pterygo-maxillary region and the parotid render their extirpation somewhat difficult. This operation, however, may be accomplished by enucleation because of the distinct capsule. Local recurrence is always due to incomplete ablation.

Tumors of the hard palate are similar to those already mentioned, but they often perforate the bony vault and attack the nasal fossa and the maxilla. They are less clearly defined than tumors of the soft palate and some of them are of the same nature, having been derived from the palatine glands; others may be more properly classed as sarcomata, particularly the plexiform sarcoma and the angio-sarcoma.

#### THE SUCCESS OF SALOL IN GENERALIZED SCLERODERMA.

A. PHILIPPSON in the *Deutsche Medicinische Wochenschrift* of August 12, 1897, reports two cases treated with salol. The improvement in both was marked and permanent from the start. The pruritus ceased at once, and the skin regained its suppleness and the members their flexibility in eighteen months in the first, a very severe case, and a little later in the other, a woman of sixty-nine. The dose in the first case (a young man) was forty-five to sixty grains a day, in the other twenty to thirty grains. No inconveniences were observed from its prolonged use. Massage and gymnastics were ordered as indicated.—*Journal of the American Medical Association*, Sept. 18, 1897.

#### SARCOMA OF THE TONGUE.

MARION (*Revue de Chirurgie*, No. 7, 1897) in the course of a paper upon Sarcoma of the Tongue, being a report of cases, advises early extirpation not only of the tumor, but also of a considerable portion of the apparently healthy tissue surrounding it. This is facilitated by splitting the cheek. The resulting scar is scarcely perceptible. This first intervention is sometimes efficient, as in the cases of Butlin and Mercier, Poncet, and others. If following this first ablation sarcoma becomes generalized in the cervical ganglia or elsewhere, radical surgical treatment must be abandoned; the surgeon's efforts must be

confined to avoiding the accidents of generalization, such as asphyxia by compression. If there is local recurrence the tumor should be again removed, Marion arguing against total ablation of the tongue. Following this procedure he quotes several successful cases. As to enlargement of the ganglia, the majority of cases are inflammatory; none the less they may be sarcomatous, hence all enlarged glands should be removed, though the outlook in such conditions is extremely unfavorable. In unfavorable cases the author suggests antisarcomatous injections. He quotes one case in which injections of pyoktanin were followed by subcutaneous enucleation of the growth and cure. At first every second day, then every six days, thirty minims of 1:1500 solution was injected into the base of the tumor.

#### RESECTION OF HALF A CANCEROUS STOMACH.

DERIAJINSKY (*Revue de Chirurgie*, No. 7, 1897; quoted from *Annales de la Société de Chirurgie de Moscou*, t. xv, No. 4) operated upon a woman, forty-six years old, who had been vomiting for nine months. She was in good condition and a large tumor was distinctly felt. On opening the peritoneum a neoplasm was found occupying all the pylorus, nearly the entire lesser curvature of the stomach, and a portion of its posterior wall. In spite of its size the growth was extremely movable, and the author, deciding to remove it, completely dissected all that portion of the stomach in which it was placed—that is, the entire pylorus and the lesser curvature to the cardiac orifice. There remained only the lower half of the stomach, which was closed by suture and secured to the divided duodenum. The operation lasted three hours. The author stated later that the patient suffered from parotiditis and obstinate diarrhea. The wound suppurated. None the less the patient began to recover, but on getting out of bed five weeks after operation was taken with green vomiting, which lasted for five or six days, when she died with phenomena of cardiac paralysis. Autopsy showed death was due to septicemia, but the results of operation were satisfactory, the suture having held completely.

Although this case ended fatally it is interesting as showing that with better technique such extensive resection of the stomach may be a feasible operation.

*THE TREATMENT OF GOITRE.*

SERAFINE (quoted by *Revue de Thérapeutique*, July 15, 1897) states that treatment of goitre by thyroid gland is best adapted for the form known as struma parenchymatosa. Definite cure is rarely observed and only in young subjects. The results are satisfactory in sixty-three per cent. of cases, the goitre lessening in size. In thirty per cent. of the cases the treatment is absolutely valueless. When goitre has undergone secondary degenerations, such as colloid or cyst formation, the treatment is useless. The effect of treatment is manifested almost immediately, and the dry thyroidin is more potent than other forms of the gland. Thyroidin is not indicated in Basedow's disease, excepting at the very beginning of the affection when the symptoms are pronounced; not only is the treatment useless, but even dangerous. The therapeutic effects are transitory, hence the thyroid extract should be given from time to time.

*THE RADICAL CURE OF HERNIA.*

LANNELONGUE (*Revue de Thérapeutique*, July 15, 1897) reports in all thirteen cases, the youngest four months old, the oldest sixty years. The technique consisted in injections about the hernial sac, guided thereto by the bony fibrous tissues surrounding it. The patients are subject to no previous preparation. The author does not object to the administration of a purgative the night before.

He advises that in adults the condition of the kidneys should be examined into and states that with this end in view he employs the procedure of Achard because of its simplicity. This is as follows: One cubic centimeter of a five-per-cent. solution of methylene blue in distilled water is injected into the buttock after the patient has emptied his bladder. Half an hour, one hour, an hour and a half, and every half hour until six hours have passed the patient is directed to urinate, each time in a separate glass. If the kidneys are healthy the dye should be passed in the course of the first hour; if it is not passed for two hours there is a diminution in the eliminative power of the kidney; and great retardation indicates advanced disease. If the urine passed in the first two hours is not tinted it should be shaken up with chloroform; if the latter is colored the blue has passed.

As to technique of the hernia treatment the greatest care should be taken not to inject the fluid into the peritoneal cavity and not to

wound the cord. The first accident is avoided by reducing the hernia and by keeping it reduced by the fingers of an assistant carried into the internal ring. Chloroform should be given to complete relaxation. After the field has been prepared antiseptically two series of injections are made: the first internal to the cord, which is protected by the index finger of the left hand; the second, external and somewhat behind it. Each series is made up of three injections of ten minims of ten-per-cent. solution of chloride of zinc. As the injections are completed the fingers of the assistant, which are employed to hold up the hernia, are replaced by a tampon of gauze and cotton reinforced by a large amount of absorbent cotton and held in place by a spica of the groin. The latter is removed the third or fourth day, the suspensory being employed in cases of scrotal edema.

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*A CASE OF STREPTOCOCCIC SEPTICEMIA  
TREATED BY ANTISTREPTO-  
COCCIC SERUM.*

Wratsch, No. 21, 1897, reports the case of a man twenty-three years old, suffering from streptococcic septicemia. Diagnosis was made by blood examinations which gave pure cultures of this microbe. The patient was extremely ill with all the typical symptoms of the aggravated form. There was marked improvement following the third injection, which was progressive and finally ended in cure. Convalescence was retarded by gangrene, which required amputation of both feet.

*CYSTITIS IN NURSING CHILDREN.*

FINKELSTEIN (*Revue Pratique d'Obstétrique et de Gynécologie*, July, 1897) calls attention to the frequency of cystitis in the course of infectious diseases attacking nursing children. He has observed over thirty cases, all under one year of age and nearly all girls, suffering from bronchopneumonia, acute gastro-enteritis, meningitis, etc., which nearly always ended fatally. The etiology of this affection, the author believes, is nearly always dependent upon retention, the result of the grave general disease. This retention of course renders the bladder vulnerable, bacteria penetrating by way of the blood or from the rectum or along the urethra.

As a result of autopsy the author believes the urethral route is the ordinary one, since in the cases he observed the urethra was nearly always soiled with fecal matter. The

absence of colon bacilli in the blood and the other organs would seem to exclude the hematogenic infection.

This communication is important since it calls attention to the necessity of examination of the bladders of extremely ill children and the use of a catheter when retention is observed; also, it impresses upon the nurse the importance of frequently changing diapers and of carefully washing the vulva and the urethral outlet, especially in cases of gastro-enteritis.

#### *TREATMENT OF EXOPHTHALMIC GOITRE.*

At a recent meeting of the Academy of Medicine of Paris (*Progrès Médical*, July 31, 1897), a paper by Jaboulay was read dealing with nine cases of section of the cervical sympathetic for exophthalmic goitre. The results were good, both with respect to the exophthalmus and to the goitre and palpitations. The best effect was obtained in young people in whom presumably the accelerator system of the heart was less developed and more thoroughly modified by the division of the sympathetic. In cases of failure of the treatment an explanation might be found in the existence of two sympathetic cords in the neck—a not infrequent anomaly. At the same meeting Doyen reported two cases of exophthalmic goitre successfully treated by thyroidectomy. He preferred this operation to division of the cervical sympathetic, both on account of its safety and for its beneficial results. Such cases seemed to demonstrate the pathogenic rôle played by hypersecretion from the thyroid.—*British Medical Journal*, Aug. 28, 1897.

#### *SUPPURATING CHONDRO-OSTEOSARCOMA OF BREAST.*

ST. ARNOLD, of Lucerne (*Virchow's Archiv*, vol. cxlviii, part 3, June, 1897), describes an interesting case of this rare disease in a lady aged sixty-seven. She had noticed, in the spring of 1895, a swelling in the left breast, but her family doctor believed that it had already existed there for some time. Diagnosis at first was doubtful. The swelling grew steadily and became painful. After traveling the patient consulted a doctor at Zurich, and he diagnosed mammary abscess. As pus escaped when he made an incision he naturally believed that his original opinion was correct. The swelling, however, increased, and fever set in, with extension of

inflammation to the circumference of the breast. The patient became exhausted and slightly delirious. Lünig found the breast much swollen and surrounded with dilated veins and lymphatics. In the midst of the swelling was a cavity, which was packed with iodoform gauze. Its walls were very firm, and it discharged fetid pus. The axillary glands were not enlarged. Lysol was freely applied, but the temperature rose over 105°, and the patient seemed too weak for an operation. At the end of a week after she had been under Lünig's care she seemed worse, and nothing appeared of any avail except to remove the focus of suppuration. The breast was therefore amputated and the wound thoroughly drained. Two days later the fever had disappeared. Two months after the operation the patient was in excellent health, and there was no sign of recurrence. The tumor was very tough and full of small tuberosous masses. On examination St. Arnold found that it was a sarcoma containing bone and cartilage.—*British Medical Journal*, Aug. 28, 1897.

#### *A STUDY IN EPILEPSY.*

WHARTON SINKLER and F. SAVARY PEARCE present a careful consideration of the subject of epilepsy in the *Pennsylvania Medical Journal* for September, 1897. As to treatment the authors point out that the condition must be battled with along the lines of heredity. The history of this disorder being in a family should interdict marriage; the history of insanity should do likewise. This hope may be only partially realized. Hygienic care of the patient should be enjoined. Attention to reflex disturbances in any of the special senses should be well worked out and corrected. Especially should diet and idiosyncrasies of the patient as to food be guarded. Indigestion is, no doubt, an exciting cause of epilepsy and of attacks. Gastro-intestinal therapeutics is of great value. Lavage has an important place in the therapeutics of epilepsy, as pointed out by Herter and Rachford. Intestinal antiseptics, as potassium permanganate and salol, do especial good in those cases which have fermentative dyspepsias.

Bromides are the standard remedy to stay the spells, and should be given sparingly. Many cases have the disease "bromism" engrafted upon the epilepsy by want of care of the physician.

Digestants will often aid in lessening attacks as much as any cerebral depressant.



Indeed, strychnine may be indicated where atony of the general system obtains.

Other drugs that have been of service as substitutes for the bromide treatment are trional, *Solanum Carolinense*, etc., and finally Flechsig's opium treatment may do good in exceptional instances.

Hypnotism deserves mention as a possible means of relief of epilepsy, but has not as yet been used enough to more than be a trial. Like all new impressions upon an individual case it may do good, temporarily at least.

In view of the recently advanced theory of motility of the neuron, and assuming this to be the cause of essential epileptic convulsions, hypnotism is worth a wide investigation.

Specific treatment should be judiciously employed where syphilitic origin is suspected; but this should not be persisted in to disorder the gastro-intestinal tract and other functions.

Trephining will be indicated in fracture and superficial neoplasms. Post-epileptic manias should be watched for as a guard against homicide. Commitment to an asylum may be a *dernier ressort*.

After all our care in treating this disease, it will be found that to our surprise a small percentage are cured, and a very large amount of amelioration of the severity and frequency of attacks is accomplished.

#### INCISION OF THE KIDNEY IN UNCOMPLICATED NEPHROLITHIASIS.

C. G. CUMSTON in the *Annals of Surgery* for September, 1897, advocates the following treatment: Operative measures being decided on, the patient is placed, as in any operation on the kidney, in the lateral decubitus, on the side of the healthy kidney. The loin next the operating table should be well raised up by a large and firm cushion, in order to put on the stretch the parts to be operated on. The thigh on the side of operation should be slightly flexed.

The operator stands facing the patient's back and an assistant on the other side of the table opposite him. The twelfth rib, the crest of the ilium, and the external border of the sacro-lumbar muscular mass are located by palpation. The proper incision to select in order to reach the kidney with ease has been a matter of much debate among surgeons. All the various cutaneous incisions have been pretty thoroughly tried: the vertical incision

of Simon, with a prolongation over the ribs and buttock; Czerny's incision extending outward from the last rib; Guyon's oblique incision; Morris's very oblique incision, and that of Le Dentu, which is parallel to the twelfth rib. Tuffier's incision begins at the eleventh rib, about eight centimeters from the spinous apophysis, and is carried down to the iliac crest. If the kidney is in its normal position, this incision should be parallel, or nearly so, to the twelfth rib, but if the organ is found by palpation to be lower down than normal, the incision should be made slightly oblique downward and outward.

If Tuffier's incision be chosen—and it appears to the writer the best of those already proposed—the skin being incised, we fall upon the subcutaneous cellular tissue, which in stout subjects is quite thick. This is in turn incised, and the lower fibers of the great dorsal muscle will be seen in the upper part of the incision. The great dorsal muscle is incised, and then the great oblique; then underneath these we come to the small oblique and the white, glistening aponeurosis, which is the point of insertion of the transverse muscle. A few small vessels coming from the posterior lumbar vessels will be cut during the incision, but the bleeding is easily controlled by artery-clips.

The wound is then wiped out with gauze tampons, and then the upper part of the border of the quadratus lumborum may be seen. It is not necessary to incise this muscle. Then below a large nerve trunk, which is the first lumbar pair, will be seen following nearly the same oblique direction as the incision. Only one more layer of tissue now remains to be incised; it is an offshoot, so to speak, of the aponeurosis of the transverse muscle, and passes in front of the quadratus lumborum. This aponeurosis is very thin, so much so that in most subjects the subperitoneal and perirenal fat may be seen by transparency.

The nerves cut in this operation are of no account, as only a few fibers of the perforating lateral branch of the twelfth intercostal nerve are in the way.

There is, however, one accident that must be avoided in incising the lumbar walls, and that is opening the pleural cavity, which at the costo-lumbar hiatus of the diaphragm is only separated from the renal fat by a very thin layer, coming down from the concave aspect of the diaphragm to the quadratus lumborum. For prudence' sake it may be advisable to open the aponeurosis of the

transverse from below upward, then introducing the finger into the incision in the aponeurosis, the fat and pleural cul-de-sac are pushed upward on the end of the finger.

Next to be accomplished is to get through the perirenal fat, and this should be begun at the anterior aspect of the kidney, as it will be done more quickly by so doing. When the organ has been laid bare it is brought up into the incision, but this must be done slowly so as not to exercise too sudden a traction on the pedicle. If there is any difficulty in bringing the kidney up into the incision, an assistant places his closed fists under the ribs and pushes the organ up into the wound. When the kidney is brought up under the twelfth rib both its sides and ends must be carefully explored, as well as the pelvis of the organ, in order to detect the presence of a calculus. If digital exploration is without result, which is in most instances the case even when large calculi are present, acupuncture should be resorted to. This is done by means of a long, fine needle introduced methodically into the parenchyma of the kidney, centimeter by centimeter, along the convex border of the organ; then in the sides and at the hilum after the exact position of the renal vessels has been located. If the needle strikes a stone, it will transmit a special sensation to the surgeon's fingers.

If neither palpation nor acupuncture reveal the presence of a calculus, the only alternative that remains is to incise the kidney, and this should be done without the slightest hesitation. Incision of the kidney is perfectly safe, but should be made in such a manner as to involve the least vascularized part of the gland. We may thus attain the calyces and the pelvis of the organ, and the incision is afterwards closed by sutures without the least harm being done to the vitality of the organ. The pelvis of the kidney should never be incised, even if the calculus is felt within it, because the incision is likely to heal imperfectly, resulting in a urinary fistula.

Before incising the kidney, which should be done on its convex border, preventive hemostasis should be secured by compression of the pedicle, either between the fingers of an assistant, if the patient is thin and the opening sufficiently large, or between the operator's fingers of the left hand. Forcipressure can also be used by covering the blades of a clamp with rubber tubing.

Believing, however, that the majority of surgeons would prefer applying a clamp to the pedicle, as in the writer's experiments on

the cadaver it was found that digital compression was very tiresome and not secure, he has devised a clamp for this purpose.

Preventive hemostasis is absolutely necessary, as no hemorrhage can occur, and the field of operation is unobstructed by blood. Compression of the pedicle with clamps does no harm, and may be kept up without danger for half an hour, as is claimed by Tuffier, without any bad result.

In order to reach the pedicle and properly apply the clamp the fingers should be passed down by the easiest opening. By following the concave aspect of the organ the fingers will feel the pulsations of the artery. If a clamp is used, it is simply introduced along the fingers, using them as a director.

The kidney being held in the incision, it is incised on its convex aspect for from four to ten centimeters, and the incision should be carried down deeply in the parenchyma, so as to open into the pelvis of the organ. The slight oozing that takes place is rapidly mastered by packing the incision with gauze for a few moments. The finger is then passed into the kidney, and the presence of a calculus lodged in the parenchyma, calyces, or pelvis is sought for. If nothing can be felt a very fine ureteral bougie should be passed down along the ureter to make sure that the calculus has not become lodged therein.

When the calculus or calculi have been found they must be removed. If the stone is small and movable the finger alone can generally remove it from the kidney. If, on the contrary, it is lodged in the parenchyma, a small forceps or better a curette must be employed. If the calculus sends off prolongations into the calyces, a careful dissection must be made with the knife, as has been done by Tuffier, and the resulting wound closed with fine catgut sutures.

Tuffier was the first to demonstrate experimentally that immediate suture of the renal parenchyma could be done while compression of the pedicle was still applied, with the result that all hemorrhage was prevented after the compression was removed, and that an exact union by first intention took place, and which did not allow the urine to escape from cutaneous fistula in the lumbar incision. Applied to man, this method has given remarkable results.

All that is necessary is a good, curved needle, and stout catgut of large size. The borders of the renal incision are brought together and held in apposition by an assistant while the sutures are being passed deeply

through the parenchyma. Each suture is tied as soon as inserted, from four to eight being sufficient, according to the length of the incision, and should be only moderately tight, because it must be remembered that there still being a compression of the pedicle the kidney is empty of all blood, and consequently it is easy to approximate the borders of the incision. But when the clamp is removed the organ greatly increases in size by the return of the circulation, and the sutures will compress the parenchyma so that the organ becomes lobulated, and if the catgut has been tied too tightly it will cut through the tissues, an event that is to be avoided.

The pedicle clamp should only be removed when the catgut sutures have been tied, and what is most astonishing, not a single drop of blood will be seen to ooze from the renal incision, if the sutures have been properly applied.

After having made sure that hemostasis is complete, the kidney is dropped back into its place, and the perirenal fat is closed over it by a running suture of fine catgut. The external incision is in turn closed, according to the method employed by each operator.

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**SUBMUCOUS UTERINE FIBROID: OPERATION UNDER GRAVE CONDITIONS; ULTIMATE RECOVERY.**

CH. PLATON (*Marseille-Médical*, March 15, 1897) operated upon a patient who suffered for five years from nearly continuous hemorrhages and all the classic symptoms of a uterine fibroid. She was profoundly anemic, and nearly cachectic. Two tumors were felt in the abdomen: one was median, and as large as a man's head; the other was on the left side, and was much smaller. The patient was not operated upon at once, in the hope that her general state of health would improve; but the hemorrhage continued, and the temperature began to rise, so the abdomen was opened, and the uterus, containing a large submucous fibroid of the fundus, was removed (total abdominal hysterectomy). The smaller tumor felt at the side turned out to be a small ovarian cyst. The patient nearly died on the table, and required hypodermic injections of cognac and of Hayem's artificial serum. These injections had to be repeated several times during the first few days after the operation, and recovery was further delayed by the occurrence of three stitch abscesses in the abdominal wound.—*British Medical Journal*, Aug. 28, 1897.

**THE "R." TUBERCULIN.**

SLAWYK of Heubner's clinic (*Deut. Med. Woch.*, July 22, 1897) reports upon fifty injections of the new tuberculin. One child received twenty-three, another twenty-one, and the two remaining ones two injections. The smallest quantity injected was  $\frac{1}{1000}$  milligramme, and the largest six milligrammes. Full details are given of the first two cases. The elder child, aged  $8\frac{3}{4}$  years, reacted vigorously, whereas the younger and weaker child showed no symptoms. The reaction consisted in fever, sweating, collapse, local redness (and even eventual abscess) of old scars and of the injection site. The patients did not become accustomed to the agent after increasing doses. The highest temperature occurred most often on the day of the injection, but the fever lasted sometimes for several days. The general condition was very little affected by the fever. In one case evening rises of temperature and sweating were noted. A severe collapse once followed an injection, giving rise to grave anxiety. With children great caution in the question of dose is required. Doubling the dose is not to be recommended, and not more than two milligrammes should be given. Once a fistulous opening appeared in a scar in the neck leading down to a tuberculous gland, but the tuberculous tissue was not discharged through it. No certain conclusions can be drawn as to the value of this tuberculin as the time is as yet too short. In the second case an improvement in the condition of the lungs was observed, and in the first case the body weight increased, the glands became smaller, and the very enlarged spleen diminished in size. The injections were discontinued in the other two cases for independent reasons.

Wörner (*ibid.*) has treated eight cases, including four of lupus, one of scrofuloderma with pelvic abscess, and three of early phthisis. In one case of lupus considerable improvement was noted. Two other cases which had been scraped shortly before the tuberculin treatment showed no recurrence. In the case of scrofuloderma rapid cleaning and even healing of long-standing ulcers took place. Little effect was noted in the cases of phthisis. The author is encouraged to a further trial of this remedy in small doses.

Seeligmann (*ibid.*) reports a case of tuberculosis of the skin and generative organs which was improved by the use of tuberculin.—*British Medical Journal*, Aug. 28, 1897.

*A CONTRIBUTION TO THE EXPERIMENTAL SURGERY OF THE URETER.*

J. WESLEY BOVEE (*Annals of Surgery*, September, 1897) makes some interesting observations under the above caption, detailing the results of four experiments on dogs. In his paper he discusses only such injuries of the ureter as require restoration after its complete lateral division. At present opinion is divided as to the relative merits of uniting the two ends of the cut ureter and implanting the kidney portion into the bladder. Both operations have been done successfully, though bladder implantation far exceeds in the number of cases operated on. To the writer there appears a fairly clear field for each operation, yet some of the best men of the country believe one may be substituted for the other or that only the one should ever be done. Nearly all are agreed that either is preferable to nephrectomy, believing conservation of kidney function is far better than its destruction on one side. Some German operators, of course, claim that the kidney must be removed when the ureter is disabled by such an accident as complete division.

One year ago the writer reported a case in his practise in which while removing a tubo-ovarian abscess the ureter was severed, but the life of the patient was saved and the duct restored by obliquely splicing the cut ends. This was the only time this precise manner of repair had ever been employed either in man or the lower animals.

It has been stated by some experimenters in this line of work that, even if union did occur after such anastomoses, constriction was sure to follow, though the few published cases do not lend support to such statements. On this supposition the author determined to make experiments on dogs to corroborate or refute them. The test was not a fair one, as the size of the ureter in the dog does not compare at all favorably with that duct in man. It is much smaller, and therefore more difficulty is experienced in operations on it in dogs. Again, these animals are more difficult to prepare for such surgery and to control after operation. Sepsis is very liable to complicate abdominal surgery in dogs.

His experiments on splicing the ureter were not altogether satisfactory on account of sepsis and shock. The animals he was able to obtain for the work were too small, both for ease in work and in durability against anesthesia and the operation. The third, however, was fairly successful as to subse-

quent constriction, and was satisfactory as to union of the severed duct.

The first two dogs demonstrated the possibility of securing union after oblique section of the ureter, even in a duct about one-fifth the size of that of the human adult, as was the second.

But subsequent constriction, one of the strongest objections offered to this method of conservation of injured ureters, was not disproved on account of the early death of the dogs. To this extent the experiments were failures. Even had these animals lived sufficiently long for such constriction to occur, and it had occurred, we could find in it no decisive proof that such is the result in man.

While the last two experiments do not demonstrate beyond doubt the feasibility of downward displacement of the kidney to allow approximation of distant points of the ureter in man, they furnish us with prospects for a conservative operation and for the removal of one of the indications for nephrectomy. If, too, it is found feasible, the force of the argument in favor of implantation of the ureter into the various portions of the intestinal canal and on to the surface of the body will be very much weakened. If it will prove to be a practical operation, then its employment will be indicated in cases in which the loss of extent of the ureter is too great to be spliced by any of the four methods heretofore employed. If the portion of the duct disabled be the extreme lowest, then the depression of the kidney will be to permit the operation of uretero-cystotomy, as suturing the ureter deep in the pelvis is very difficult, though the ureteral catheter and the position of Trendelenburg render it much easier of execution. This new operation is not designed for competition with uretero-cystotomy, uretero-ureteral anastomosis instead being the successful competitor of that operation in most cases. On the contrary, it may be employed as a preliminary operation to bladder implantation of the ureter. That the kidney in the dog is more movable than that organ in man is of no importance, for we well know that separating that organ in man from its attachments, other than about the renal vessels, is not difficult. And we will find the elasticity of these vessels, together with their attachments to surrounding tissues near their junction with the kidney, will be the controlling element in the mobility of this organ downward. By careful dissection this limitation can be very materially modified to meet the demands of nearly any requirement.

### STERILIZATION OF SURGICAL INSTRUMENTS.

G. DENIGES has combined Marechal's suggestion that instruments can be protected from rust indefinitely by the addition of a small quantity of some alkaline with the use of a powerful antiseptic, and announces that instruments thus treated are absolutely sterilized, while they suffer no injury, even if left for months in the antiseptic solution. His formula is mercuric cyanide two to five grammes in one liter of water, to which is added five grammes sodium borate or carbonate. It is also remarkably effective and harmless for disinfecting the hands. As the efficacy of sodium bicarbonate has been recently proclaimed in the treatment of purulent wounds, he adds that this might be substituted for the borate. The present low price of mercuric cyanide would be still further reduced if there was more demand for it. Its toxicity has been much exaggerated, as one molecule  $Cy, Hg$  only contains 1.5 cyanogen to 4.5 mercury. It is much superior for the purpose to the bichloride, is less caustic, and does not affect the albuminoids, which are coagulated by sublimate. He hopes to see his formula generally adopted in outside antiseptics and hospital practise.—*Journal of the American Medical Association*, Aug. 7, 1897.

### A NEW METHOD OF SUTURING.

In the *Centralblatt für Gynäkologie* of May 15, 1897, ZWEIFEL describes a new method of applying a continuous suture which possesses the very great advantages of simplicity and rapidity of application. It is the stitch used on many "double-thread" sewing machines, and is applied in the following manner:

A straight, blunt-pointed needle and the curved needle in a handle with an eye in its point are both threaded and the threads fastened at one end of the line of suture. The Peaslee needle is then thrust through both edges of the cut, and the straight needle is each time passed through the loop in the eye of the curved one, and so a continuous suture is made, there being on each side of the incision a thread, while the crossings of the thread are all concealed.

In places where the skin is thin this is of advantage, as it causes the fold to rise slightly in the middle; but in thick or fat skins this rise separates the epithelial edges too far, and then an extra precaution is necessary: either a turn of the thread in the straight needle must be made about the other before each

stitch is taken, or a third thread is employed, which must be passed from one side to the other of the cut each time before the suture is passed through the skin. This keeps the edges flat.—*Medical News*, Aug. 7, 1897.

### PREGNANCY AND LABOR AFTER VENTRIFIXATION OF THE UTERUS.

VIGGO ESMANN (*Hospitalstidende*, June 23, 1897) records the case of a woman, thirty-three years of age, who had menstruated regularly since the age of seventeen, and who had become pregnant after the operation of ventrifixation of the uterus and repair of the perineum "*ad modum* Tait." She had twice previously been pregnant—ten and eight years ago respectively—and prolapse of the uterus, necessitating the ventrifixation (in 1891), had come on soon afterwards. During the third pregnancy she developed a marked ventral hernia in the region of the lower part of the laparotomy cicatrix; for this she wore an elastic abdominal belt. In the hernial sac and adherent to it was part of the gravid uterus; there was some ulceration of the sac wall, and slight hemorrhage from the cutaneous veins. She was kept lying in hospital during the last two months of pregnancy. Labor was tedious, the child presented by the feet, and after twenty-four hours the cervix was sufficiently dilated to allow of its extraction. The uterus contracted well, the placenta was spontaneously expelled, and there was no post-partum hemorrhage. The ventral hernia is to be operated upon later.—*British Medical Journal*, July 24, 1897.

## Reviews.

A MANUAL OF LEGAL MEDICINE FOR THE USE OF PRACTITIONERS AND STUDENTS IN MEDICINE AND LAW. By Justin Herold, A.M., M.D. Philadelphia: The J. B. Lippincott Company. 1898.

This volume of nearly 700 pages, including the index, is devoted, as its title indicates, to the subject of medical jurisprudence. Naturally its publication leads one to compare it, first, with Taylor's well known book on this subject, which has within recent years, and indeed in this very year, been revised and brought up to the present standing of this subject, and second, with the more exhaustive two-volume treatises published in a systematic form and edited, on the one hand by Witthaus, and on the other by Hamilton.

The first point that strikes us in reading

the preface, as being of some importance in connection with a medico-legal work, is the final sentence, which reads: "Should any errors of omission or commission be discovered by readers the writer asks their indulgence, as the work has been prepared in the midst of a busy professional career." It seems to us that this is an unnecessary confession of possible inaccuracy, and at least raises a doubt in the reader's mind as to whether some of the medico-legal statements can be relied upon, if the author is willing to admit at the very start that his text has been prepared under such pressure that errors may have crept in or omissions been made.

Some of the authorities which are quoted in the chapters upon Toxicology are scarcely original and perhaps are not as authoritative as they would appear. In these chapters on Toxicology most of the common mineral and vegetable poisons are considered. For some curious reason hydrate of chloral is discussed under the chapter on Anesthetics. We regret that in a number of instances where statements are made as to small or large doses which will produce or have produced certain symptoms of poisoning, the authorities for these statements are not given. Thus in the case of cocaine we are told that half of a grain has proved fatal when taken internally, and  $\frac{1}{30}$  of a grain has caused violent and dangerous symptoms in a girl of twelve years, while still more remarkable is the statement that the application of  $\frac{1}{100}$  of a grain to the eye of a child of fourteen years produced symptoms of poisoning. It would also have been more accurate to state the doses that are capable of producing death from this drug in "forty seconds." If such a case actually occurred the dose must have been a large one and injected directly into a blood-vessel.

Dr. Herold repeats the old and long since proven incorrect assertion that in addition to nicotine tobacco contains nicotianin. No such substance is known to chemists as an ingredient of tobacco, but the statement that tobacco contains it is repeated from one textbook to another until it becomes wearisome. The statement that nicotine is "more rapid in its effects than even prussic acid" is certainly incorrect, for prussic acid is dependent for its action upon its volatility and rapidity of absorption when it is swallowed; whereas nicotine is not absorbed any more rapidly than many other poisons.

It must not be thought, from the criticisms

which we have offered and the minor errors which we have pointed out, that the book is devoid of interest or value. On the contrary the large experience Dr. Herold has had both directly and indirectly in connection with medico-legal subjects renders much of the material which he has brought together in this volume of considerable original interest, and we doubt not that those who are particularly interested in medical jurisprudence will, after an examination of the book, be glad to add it to the other volumes to which they refer. We believe, however, that for the ordinary practitioner and student of medicine the classical book of Taylor will still remain popular.

LECTURES ON THE MALARIAL FEVERS. By William Sydney Thayer, M.D.  
New York: D. Appleton & Co., 1897.

This is quite a good sized octavo volume of over 300 pages, illustrated with the plates, which have become classic during the last eighteen months, of the malarial organism as seen during investigations by Dr. Thayer and his co-laborer, Dr. Hewetson. Additional drawings have also been added which make the original plates more complete. The volume is one which does exactly what its title indicates, namely, it describes the various forms of malarial fever as they are met with in this country and abroad. The author has satisfied himself not alone with clinical and laboratory research, but has brought to the compilation of these so-called "lectures" a very wide study of the bibliography of the subject, so that almost every page gives evidence by one or more foot-notes of his careful laboratory investigations. We think it a mistake that he should have given so valuable a monograph a title which at first glance would lead one to believe that the pages simply recorded remarks made at clinical lectures upon malarial disease. As a matter of fact this volume is a monograph which should be in the hands of every physician who ever sees a case of malarial fever—and who does not?

There are one or two points in the therapy of the disease on which we think Dr. Thayer might have dwelt more thoroughly, but perhaps if he had done so he would have gotten into debatable ground with little satisfaction to himself and his readers. We repeat what we have just said, namely, we urge upon every physician who lives in a malarial district that he be not satisfied until he has made a careful study of Dr. Thayer's work.

**PRACTICAL PATHOLOGY FOR STUDENTS AND PHYSICIANS.** By Aldred Scott Warthin, Ph.D., M.D., Instructor in Pathology, University of Michigan. A manual of laboratory and post mortem technic, designed especially for the use of junior and senior students in pathology at the University of Michigan. Ann Arbor, Michigan: George Wahr, publisher and bookseller. 1897.

This book may be said to stand intermediate between a manual and a so-called compend, and is evidently constructed with the idea of serving the writer's students. As such it, no doubt, fills the author's want; still in it much is written that is not altogether above criticism, but is, as a rule, clear. That the author has not entirely avoided ambiguity will be seen by his reference to the "ligamentum teres," on page 38, which in the application in which he uses it is not to be found in some works on anatomy, and therefore might be misleading to the student. There is also a slight tendency toward the use of terms beyond the grasp of many medical students. A few errors in statement occur; this is unavoidable in any first edition. Thus, on page 45, we are told that pathologic conditions are frequent in the septum ventriculorum. While, for the most part, the formulæ given in the book are sufficiently clear for the student to follow, occasional exceptions occur. On page 16, of Part II, when describing the method of freezing tissue for sectioning, we are directed to place the tissue "in a drop of solution of liquid gum and syrup." This is not very explicit. Such errors are, however, extremely rare.

The first part consists of 103 pages, and has to do with post-mortem work, and the examination of pathological specimens in general. On page 97 of this part we find directions for curetting the uterus, something not usually considered in place in works on pathology.

The general directions, however, for obtaining material for microscopic examinations are good.

The second part consists of 134 pages, including the index, and has to do with the technique of microscopic examinations. It is, as a rule, clear; an exception, however, may be noted on page 119, in the following statement concerning the examination of the eye: "The fresh cornea is put into freshly prepared 8 filtered lemon juice for five minutes."

Another criticism of the book which may be offered is that it is all bound in one volume, composed of two parts, paged separately, and only the second part indexed. The order given for the post-mortem examination is not that usually adopted.

The book is printed on fairly good paper, in clear type, heavily leaded, and with such a large amount of blank space that one cannot avoid thinking that, to use the language of a printer, it is "padded."

**PRACTICAL DIAGNOSIS: THE USE OF SYMPTOMS IN THE DIAGNOSIS OF DISEASE.** Second Edition, revised and enlarged. By Hobart Amory Hare, M.D., B.Sc. Illustrated with Engravings and Colored Plates. Price, \$4.75.

Philadelphia and New York: Lea Brothers & Company, 1897.

It is stated in the preface that the first edition of this book (a review of which was published in the *THERAPEUTIC GAZETTE* during the fall of 1896) is designed to lead the physician and the student to a diagnosis from the symptoms which he finds present in his patient. In other words, its method consists in taking up the subject of vomiting, for example, discussing its various causes and diagnostic significance and the differentiation of its forms. In the event of a patient suffering from paraplegia it will be found in the chapter on Feet and Legs that the various causes of paraplegia are discussed and the symptoms described in the manner in which they are apt to be manifested by the patient. The book is therefore an endeavor to teach diagnosis exactly as the physician meets it at the bedside, and does not follow the methods usually adopted in works on diagnosis or on the practise of medicine.

The preface is self-explanatory:

"The first edition of this book, which was published in August, 1896, was so rapidly exhausted that the author has had an early opportunity to prepare a second edition, from which the unavoidable faults of a first edition have been expunged and to which many new facts have been added. The author desires to reiterate the fact that the book was written with the hope that it would prove useful as a guide in bedside practise. That the profession needed a book dealing with diagnosis from the standpoint of the symptoms manifested by the patient seems to be evidenced by the rapid sale of the first edition."

**INCOMPATIBILITIES IN PRESCRIPTIONS.** For Students in Pharmacy and Medicine and Practising Pharmacists and Physicians. By Edsel A. Ruddiman, Ph.M., M.D.

New York: John Wiley & Sons, 1897.

This is a useful book, particularly to the young physician, and is designed to guide him in his prescription writing in such a way that he will not make pharmaceutical or chemical incompatibilities. The first part of the book is chiefly interesting to physicians.

In this part the substances treated are arranged in the alphabetical order of their Latin names, except in the case of some of the newer remedies. Under each name is given nearly all the known incompatibilities. Thus, under "*Acetanilidum*" we find nearly half a page in which are detailed the common incompatibilities, and after each statement of incompatibility a brief reference to the authority is given. This part of the book consumes 101 pages. The remaining 130 and odd pages are devoted to prescriptions, with criticisms; a large number of prescriptions containing ingredients which are incompatible are given, no less than 325 being included in this list. Following this under each number is given a rational criticism or explanation of the incompatibility. It is this part of the book which will appeal particularly to the pharmacist. At the close of the book is a table showing the effect of rubbing together equal weights of two solids.

We must congratulate Dr. Ruddiman upon having prepared a very useful manual which will undoubtedly prove most valuable to the two classes for which he has written it, and many physicians, both young and old, will do well to have this book at hand.

**ESSENTIALS OF OBSTETRICS.** By Charles Jewitt, A.M., M.D., Sc.D. Assisted by H. F. Jewitt, M.D. Illustrated.

Philadelphia and New York: Lea Bros. & Co., 1897.

The first sentence in the preface of this small octavo volume of 358 pages states that its object is to place the essentials of obstetrics within easy grasp of the student, and we learn from statements further on in the preface that the authors evidently do not intend that it shall be used for the purpose of supplanting the more exhaustive works which are commonly employed as text-books. As is the custom with text-books on obstetrics at the present time, this one is profusely illustrated with photo-engravings and ordinary illustrations, both of apparatus, of methods of measuring the pelvis, and of the means by which palpation of the abdominal area is usually practised. In a number of instances colored plates have been inserted as for the purpose of showing the fetal circulation or the arrangement of the placenta.

In the presence of the excellent manuals of Reynolds, Davis, Dorland, and others, we cannot state that this is a book which is to be preferred to any other work which can be purchased with the object of obtaining concise obstetrical information; but from a careful examination of the text we feel that we

can truthfully say that there is little choice between this and the standard condensed works of which we have spoken. There is no doubt that the arrangement of the subject and the way in which it is discussed is such as to render the difficult subjects of Embryology and the Mechanism of Labor plain to any student who at the same time will study the larger works which every student of obstetrics should possess. In other words, students of obstetrics can with profit use this handbook as a stepping-stone when seeking for a larger amount of information from more advanced manuals.

**TEXT-BOOK OF THE PRACTICE OF MEDICINE.** By James M. Anders, M.D., Ph.D., LL.D. Illustrated. Philadelphia: W. B. Saunders, 1898.

Although the date on the title-page of this book is somewhat ahead of the times, it being sent out for review during the early part of October, we welcome it as a forerunner of some of the other good books which 1898 will probably produce. In his preface the author ignores the fact that within the last few years the medical profession has been fairly deluged with books on the practise of medicine, both good and bad, and to the credit of the profession be it said that the great majority of them have been unusually good, several of them bidding fair to become almost classical because of the original work bestowed upon them and the care with which they were written. Dr. Anders does, however, recognize the fact that in the present state of medical literature it is impossible to write a book on the practise of medicine without gleaning freely from contemporary works, and he gives credit to the many good books of the time for much of the information which his volume contains. It is to be understood by the reader that Dr. Anders' book is quite as pretentious in size as any of the recent volumes which we have mentioned, and we think that a fair judge will conclude that while it is not superior to some of the recent standards which have been set up for us, it is, at least in some respects, quite equal to them. It is impossible for such a book to present much evidence of originality. One of the points made by Dr. Anders is that there are no less than fifty-six differential diagnostic tables scattered through the work, most of which are of his own compilation, and these he believes will be of considerable value to the student and physician. We also find on reading the book quite carefully that in addition to these differential tables every now and again we gain the benefit of Dr.



Anders' large clinical experience by reading the details of a case or his expression of an opinion based on the cases which he has observed with his own eyes, and to this extent, of course, the book possesses originality. In the face of the books which are already published it seems futile to assert that this one has a large field which it can fill, but we can truthfully say to our readers that if they purchase "Anders' Practice of Medicine" they will at no time have cause to regret their purchase and can rest assured that they have obtained a reliable and trustworthy guide in the important subject of which it treats.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS. With Especial Reference to the Application of Remedial Measures to Disease and Their Employment upon a Rational Basis. By Hobart Amory Hare, M.D., B.Sc. Sixth Edition, enlarged, thoroughly revised, and largely rewritten. Price, \$3.75.

Philadelphia and New York: Lea Brothers & Company, 1897.

The object of this work has been described in earlier issues of the GAZETTE, in the notices which have been given previous editions. The preface of the sixth edition here follows:

"Although the number of copies printed of the fifth edition of this work was almost three times as great as was the case with earlier editions, they have been rapidly exhausted, and the author has been called upon within two years to prepare the manuscript for the sixth edition. The original object of the book was to present the physician and student with a well digested and concise, yet practically useful, statement of the best methods of treating disease. It was written for the reason that the author appreciated as a practitioner and teacher that many of the works upon this subject contain a vast amount of information so compiled as to be almost useless because the reader is forced to discover for himself what is worthy of his confidence. For this reason remedies which are so rarely employed as to be curiosities are not discussed in this volume, and the space so saved is utilized in rendering rational the application of well tried remedies both new and old.

"Many books after appearing in several editions lose a large part of their original value because the statements that have been added are so confused with the original text that its conciseness is destroyed. Recognizing this fact the author has rewritten a very considerable portion of the present edition in order to render the statements in the

text clear and concise. He has also endeavored so to arrange the work that it can be readily used in conjunction with his '*Text-book of Practical Diagnosis*.'

"As this volume is not intended as a year-book for the record of all things in therapeutics, only those measures which have proved useful and reliable in therapeutics are included. For this reason nothing is said of the use of serum in the treatment of many infectious processes in which it has proved itself of little or no avail: for instance, in streptococcus infection or tuberculosis, or in croupous pneumonia."

THE PRACTICE OF SURGERY. A Treatise on Surgery for the Use of Practitioners and Students. By Henry R. Wharton, M.D., and B. Farquhar Curtis, M.D. Profusely Illustrated.

Philadelphia: J. B. Lippincott Company, 1897.

It is always satisfactory to find stated in the preface the exact purpose for which a book is written; this the authors of this work express as follows:

"They recognize the fact that to give a synopsis of the science of surgery in one volume becomes each year a more difficult task, owing to the extension of the field of surgery since the adoption of aseptic methods. It appeared, however, feasible to condense within that limit the information necessary to enable the general practitioner or the student to carry on or begin the successful practise of the art of surgery. It seemed to them that the essential information included: (1) A description of the various injuries and surgical diseases sufficiently full to enable the practitioner to recognize them when met with in practical work; (2) full directions for the treatment of such injuries and diseases as would usually be attended by the general practitioner; (3) a sketch of the treatment of the more difficult conditions, such as would allow the practitioner to advise patients intelligently in obtaining special skilled surgical attention; (4) an outline of the accepted facts and theories of the etiology and pathology of the various surgical affections sufficient to form a foundation for the clinical picture and give directions for the treatment. Even with these limitations the material is so bulky as to require great condensation and the most careful choice of those subjects which were to receive detailed treatment. The authors cannot hope that all their critics will agree with them in the decision of the relative properties assigned to the various topics, but they trust that their practical conclusions will be found conserva-

tive and yet thoroughly modern. They hope that the book will prove a useful guide to the student in the beginning of his work in the complicated science of surgery, and that it may also serve as a ready help in the solution of the surgical problems which confront the busy general practitioner."

As for the fidelity with which the purposes as thus clearly expressed is adhered to, and the general adequacy of the volume, there can be no doubt; it is clear, direct, modern, well illustrated, reliable. The entire ground is covered in a little over twelve hundred pages.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume VI.

Baltimore: The Johns Hopkins Press, 1897.

The first article in this volume is entitled *Studies on the Lesions Produced by the Action of Certain Poisons on the Cortical Nerve Cell*. To this elaborate study are appended some striking illustrations. The lesions illustrated are those of alcohol poisoning, ricin poisoning, and experimental rabies. The addenda include *Intra-Cerebral Nerve Fibre Terminal Apparatus and Modes of Transmission of Nervous Impulses*; *Asthenic Bulbar Paralysis*.

Under the Report in Pathology are found: *The Pathology of Toxalbumin Intoxication*, by Flexner; *A Bacteriological and Anatomical Study of the Summer Diarrheas of Infants*, by Booker; *Adeno-Myoma Uteri Diffusum Benignum*, by Thomas S. Cullen; *Pregnancy in a Rudimentary Uterine Horn, Rupture, Death, Probable Migration of Ovum and Spermatozoa*; and *Fatal Puerperal Sepsis Due to Introduction of an Elm Tent*, by Cullen.

Of the scientific value of these reports it would be difficult to say too much. They are issued with a profuseness and beauty of illustration and an accuracy and thoroughness of investigation which suggest an enviable disregard of both time and money.

THE NORMAL AND PATHOLOGICAL CIRCULATION IN THE CENTRAL NERVOUS SYSTEM: ORIGINAL STUDIES.

By William Browning, Ph.B., M.D.

Philadelphia: J. B. Lippincott Company, 1897.

The title of this work would naturally lead one to expect a more or less elaborate text-book minutely describing the vascularization of the brain and spinal cord. This, however, is not the intention of the author, his book being based upon experimental and clinical work, and embracing at least in part some of his well known papers upon the subjects con-

sidered. The first chapter is devoted to the examination of the Spinal Efferents for the Cerebro-Spinal Fluid. It is concluded that outlets for the cerebro-spinal fluid exist along the lumbar nerves in the lower animals at all ages, but in the human only during fetal or uterine life. The veins of the brain of the monkey are described in the third chapter. In the fifth chapter the author discusses the arrangement of the Supra-Cerebral Veins in Man, as Bearing on the Theory of a Developmental Rotation of the Brain. There follow some reports of interesting and rare cases, minute directions for lumbar puncture and the removal of cerebro-spinal fluid are given, together with a very comprehensive tabulation of the literature.

The section upon obstructive hydrocephalus is one of special merit and thoroughness, as is also the final chapter, entitled *Apoplexies of the Brain: The Importance of Early Treatment Based on the Differential Diagnosis of the Several Forms*.

This book is commended as embodying the logical deductions of one who has studied in both the experimental and clinical fields.

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## Correspondence.

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### LONDON LETTER.

BY RAYMOND CRAWFORD, M.A. OXON., M.D., M.R.C.P. LOND.

Assuming that the end of medical science is the alleviation or arrest of suffering, and not merely to be an instrument of mental evolution, it is remarkable that such scanty attention should be paid to the department of therapeutics. In London we have societies devoted to every other branch of medicine and its sister sciences—to preventive medicine, to pathology, and to clinical medicine—but we possess no therapeutical society. Lancashire has, however, led the way in the establishment of a therapeutical society at Manchester, and perhaps what Lancashire does to-day London will do to-morrow. At the inaugural meeting of the society Professor Leech made some interesting observations and suggestions on the work of a therapeutic society. He attributed the delayed birth of such a society to the fact that therapeutics had been regarded as an integral and inseparable portion of clinical medicine. We are hardly convinced of the sufficiency of this explanation, for the same reasoning is ap-

plicable to preventive medicine and pathology, and yet these departments have not been left out in the cold. The far simpler explanation suggests itself to us that practical therapeutics as at present applied hardly rank as a science, and cannot therefore be the subject of profitable discussion by a society. As Professor Leech points out, the pendulum has swung from one extreme to the other, and whereas *a priori* hypotheses dominated the therapeutics of the early portion of the century, our ideas are now bound in the fetters of practical experience. It is to be hoped that the pendulum is now coming to rest between these two extremes, and that applied therapeutics may be brought into line with experimental pharmacology. Pathology in the last few decades has disclosed the exact nature of so many of the morbid processes which medicine has to encounter, has shown us so much of what we have to do, that we cannot well delay in seeking how to do it. A therapeutic society should certainly conduce to this end by facilitating the exchange of observations and experience of the usefulness of remedies among those who employ them. Collective experience of clinical results is the only check on the fallacious evidence of individual idiosyncrasy. As an instance in point, for half a century practitioners credited the active usefulness of the tincture of conium, made from the dried leaves or ripe fruit, which has now been shown to be absolutely inert; and as Professor Leech remarks, it is not at all clear that there is any justification for our present belief in the tincture prepared from the green seeds. But to get any useful information from collective investigation the procedure must be precise and orderly, and this is best secured within the membership of a society. There can be little doubt of the justice of his conclusion that "it is impossible to get a large number of men who have no great interest in a subject to answer even simple questions with sufficient accuracy to ensure reliable results when the answers are tabulated." On very much these lines the annual report of the Metropolitan Asylum's Board has shown pretty clearly how far and under what conditions antitoxin may be usefully employed in cases of diphtheria; and though a considerable diversity of result is recorded at the different hospitals, this has been almost completely elucidated by comparing the different conditions under which it was employed. In the same way a therapeutic society might do much to restore

order among the chaotic notions that exist in the profession with regard to the animal extracts. The evidence of pathology is pretty clear as to the opposite nature of exophthalmic goitre and myxedema, and yet thyroid extract is used indifferently for the alleviation of each disorder; and worse than this, therapeutic results, when stated with sufficient vehemence or insufficient insight, have been permitted to deform the demonstrative evidence of morbid anatomy. We hope that the good example set by Manchester may be followed elsewhere.

Dr. Sandwith, of Cairo, records a case in which thymol was employed most successfully as a vermifuge; he had used it mainly for the destruction of *anchylostomum duodenale*, but the present case shows its applicability to other parasites. The patient had suffered from *anchylostomiasis* for twelve years, and on admission to hospital was given sixty grains of thymol in two doses on an empty stomach; the same day he passed 523 specimens of *anchylostomum duodenale*, and 55 oxyurides. Five days subsequently a similar dose brought away only three oxyurides, and fifteen days afterwards no worms were passed after the dose, and no eggs were detected microscopically. The characteristic anemia readily yielded to iron, rest, and better food. In much smaller doses we have ourselves been frequently disappointed in the use of thymol as a vermifuge, and it is interesting to learn that one need not regard the pharmacopœial limitations of dosage, a respect for which is engendered by the powerful antiseptic properties of thymol. It would be interesting to know in what form the sixty-grain dose was administered, so as to avoid its undoubted caustic effect.

Dr. Lauder Brunton, in his recently published "Lectures on the Action of Medicines," among much that is chatty and instructive incidentally remarks that "sternutatories are sometimes employed in country practise as substitutes for the forceps in labor." This statement has drawn down on him the righteous indignation of a provincial practitioner, who with the most winning earnestness argues the superiority of the forceps to this perfunctory method of accelerating childbirth. But without carping at the positive pleasure he experiences in the assured and apparent efficiency of the art of forceps traction, we cannot agree with him in classing ergot among the unscientific sternutatories. The teachers of modern obstetrics have done much to bring ergot into disuse, but we fancy

this is merely a reaction against its excessive and unreasoned employment in all cases in years gone by. Dr. More Madden discusses this question in a recent issue of the *Dublin Journal of Medical Science*. He is of opinion that obstetricians have attended too much to laboratory estimates of the active principles of ergot, and too little to the observed results of its clinical use. We are even in the dark as to the number and nature of the active constituents, among which are ergotinic acid, sphacelinic acid, and cornutin. Of these the first named has no action on the uterus; sphacelinic acid is on the other hand an active poison, and by its action on the arteries is responsible for the gangrenous phenomena of advanced ergotism. It is the alkaloid cornutin that is of specific value as an ecbolic; this principle causes waves of contraction in the pregnant and non-pregnant uterus, without inducing a tetanic condition. Dr. More Madden summarizes the alleged dangers of using ergot as: (1) A possible fetical effect; (2) the inducing of irregular uterine contraction such as to favor retention of the placenta; and (3) a toxic action on the mother. The first objection has not stood the test of experience, although such a danger is conceivable if it be used in cases of protracted labor due to persistent uterine contraction. Dr. More Madden supplies an answer to the second and third objections by an abstract of 150 cases in which he had used ergot. Of these patients two died from causes unconnected with labor. In ninety-five of these cases the drug was given before the birth of the child, either for uterine inertia or to prevent hemorrhage, and in ninety-two the child was born alive; that the still-birth of the remaining three could not be ascribed to the ergot was shown by evidences of intra-uterine decomposition. In these ninety-five cases the placenta was naturally expelled in eighty-six, while in only one case was it retained by hour-glass contraction of the uterus, the retention in the remaining cases being due either to morbid adhesions or uterine inertia. In the other fifty-five cases the ergot was given after the birth of the child, either to assist in the expulsion of the placenta or to arrest hemorrhage.

While these figures go far to establish the usefulness of ergot skilfully employed, they do not of course establish the harmlessness of its abuse. On the other hand, from the very fact that the drug has the power of stimulating tonic uterine contraction, it follows that danger to the child may arise, if it

be used before full dilatation of the os, by arresting its circulation. So, too, Dr. Madden is of opinion that if large and effectual doses are given, sufficient to obtain the full physiological action of the drug, we shall have no trouble with irregular uterine contractions. His general conclusions are that ergot may in some cases be given in the first stage, before full dilatation of the os, when uterine inertia is endangering either the mother or the child; in the second stage it may be similarly used to promote uterine contraction, provided the presentation be normal, and no other impediment to delivery exist; in the third stage it may be used to assist expulsion of the placenta, if retained from uterine inertia; and in all stages for the prevention or arrest of hemorrhage. After labor it is useful in arresting after-pains by the expulsion of clots, and in promoting full involution of the uterus, especially in multiparæ in whom the muscular contractibility of the uterus is enfeebled. Lastly, he suggests that it may lessen the liability to the invasion of septic organisms by sealing up the uterine vessels. For use during or immediately after labor he prefers the official liquid extract, and gives two or three drachms by the mouth, supplemented if necessary by a drachm or two by gluteal injection. For the various purposes for which he uses ergot during the lying-in period, he has found drachm doses of liquid ergot, along with tincture of nuxvomica and citrate of iron and quinine, most serviceable.

A great deal of literature has been recently devoted to the treatment of ulcerative endocarditis by antistreptococcic serum, but we fancy that the general trend of physicians is towards dropping this line of treatment. Where such a multiplicity of organisms may be the efficient cause, and where examination of the blood so often supplies a simple negative, it is impossible to forecast with what organisms we have to deal, although streptococci usually predominate; nor on the whole have clinical results done very much to encourage its further use. It is true that from time to time cases are brought forward in which a favorable issue has seemed to depend upon it, and such a one is recently recorded by Dr. Washbourn from Guy's Hospital. In this case there could be no real doubt of the correct diagnosis, as a murmur of pulmonary regurgitation developed under observation in the course of several weeks of ill-defined septicemia with no obvious origin. For nearly two months the patient was given a daily

dose of twenty cubic centimeters of the serum, when the dose was gradually diminished for a fortnight, and then omitted. The pyrexia that prior to treatment with serum had been markedly septic, ranging daily as high as  $102^{\circ}$ – $105^{\circ}$ , with rigors and profuse perspiration, had completely disappeared in a fortnight, and the patient, who had hitherto steadily lost ground from day to day, at once rallied, so that in the course of a month she was practically well. The treatment extended over a period of nine weeks, during which time the patient received 1030 cubic centimeters of serum in fifty-nine doses, and in spite of the enormous amount employed the only ill effect was a transient urticaria. The pulmonary bruit still persists, but the whole septic trouble is clearly at an end.

We have followed with interest some correspondence in the medical journals on the Aachen treatment of syphilis. The ball was set rolling by a statement of the famous Dr. Brandis "that the inunction cure . . . in combination with the use of the Aachen waters is well known to be one of the strongest, if not the most powerful, antidote to the syphilitic poison." To this statement Arthur Cooper, of London, demurs, from a long experience of syphilis treated at Aachen and elsewhere. We agree with him that "provided the patient does as he is told, and that due attention be given to details both as regards his treatment and his mode of living generally," equally good results can be obtained in London as in Aachen. But this is the whole crux of the position, as we can testify from a limited experience of patients submitted to the Aachen cure. We should say that there is no special advantage in sending to Aachen a patient of well ordered life, who will carry out scrupulously and to the letter the directions we give him. To any one who has seen the Aachen treatment there will be little doubt that the skin is the proper channel for the administration of mercury. To the English visitor the patron saint of Aachen is not Charlemagne, but one or other of the established "frotteurs," the cheery Wilhelm, or the philosophical Franz. In private practise at home the inunction for one reason or another, usually for sake of secrecy, devolves upon the patient himself, and here inunction is at a distinct disadvantage: the patient gets less, and his habiliments more, and the curiosity of the chambermaid is aroused. Moreover, the daily hot soak at Aachen is undoubtedly of value in preventing the local eruptions that are so

common with even the most careful and well distributed mercurial inunctions; but we do not for a moment believe that there is any special value in the sulphurous waters. It is the story of Naaman over again: the continental Abana and Pharpar exercise a superior charm to the domestic bathroom; and in the one case we can count upon enthusiastic compliance, in the other on the perfunctory dallying with the systematic hot bath. At Aachen the hot bath immediately precedes the inunction and certainly facilitates the absorption of the mercury, but at home the bath is looked upon merely as "a bath of purification," and once a week follows the inunction. In mercury we have to all intents and purposes a specific for syphilis, and as physicians we have only to ensure that it is given in the right way, at the right time, and in the right place; and until we can introduce some such center of treatment into England, we believe Aachen to be that place. We believe that Harrogate supplies all the essential requirements of such a center, if only there were superadded a system of regular meals and of regular living, to keep at bay the evil spirit of forgetfulness that is the barrier to success in treatment.

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#### PARIS LETTER.

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BY A. R. TURNER, M.D. (PARIS).

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A few days ago the non-medical papers announced the arrest of a young physician practising in the east end of Paris, beyond the Faubourg Saint-Antoine. He was charged with gross malpractise in an obstetrical case. Having been called in by the midwife in charge he had endeavored to perform craniotomy, but so unsuccessfully that the patient had succumbed to the effects of lacerations of the soft parts. Curiously enough, a diary which the unfortunate young man had kept fell into the hands of the journalists, and from it some idea was obtained of his previous existence and its struggles. After taking his degree, Dr. Laporte—such was his name—served some time as surgeon on the ships of the Compagnie Transatlantique. Leaving their service with a small amount of money accumulated by economy while in their employ, he hired an apartment in one of the wealthier quarters of Paris and waited for patients. However, none came, and his funds being soon exhausted he was obliged to remove to one of the most obscure portions of the city, where he hired an apart-

ment or lodging at 350 francs a year (\$70). Dr. Laporte caused himself to be inscribed on the list of physicians for the "Assistance médicale de nuit," of which I have before spoken, and on the small fees thus obtained and what he could earn in other ways among a population which resorts chiefly to the hospital for gratuitous advice, managed to support himself.

The case to which Dr. Laporte was called, and in which an unsuccessful result led to his arrest, was a case of childbirth in which death of the child had occurred owing to the prolapse of the funis. The head was likewise too large. Dr. Laporte made three attempts with the forceps, but not succeeding, determined to perform craniotomy. To do this he asked for the implements used by the husband, an artisan, in his trade. These he employed, but unsuccessfully, and the woman, who was almost exhausted, expired not long afterwards. All this, it may be said, took place at an advanced hour of the night. At the autopsy a lacerated wound of the bladder was found, with other lesions due to violence.

The police authorities caused Dr. Laporte's arrest, and for several days, notwithstanding the protests made by several of the medical associations and by some of the most prominent medical men in Paris, bail was refused. Only recently has Dr. Laporte been allowed out on bail furnished by the president of one of the syndicates of physicians practising in Paris. Another medical society in Paris has sent a certain sum of money to Dr. Laporte, and other societies have voted resolutions in his favor.

What strikes the physician as most dangerous is that henceforth an embarrassing case in which some extreme resolution should be taken will be treated by expectation only, if an unsuccessful result is likely to be followed, not only by a lawsuit, as happens too frequently in all countries, but by imprisonment previous to any verdict.

At a recent session of the Academy of Medicine Dr. Lancereaux communicated to the society an account of a case of renal ectopy in which the displaced kidney returned to its correct position at two different times under singular circumstances. The patient was a woman in whom in 1894 a displaced kidney was discovered in the right flank. On undertaking a long journey by rail the symptoms vanished, and on examination the kidney was found to have resumed its normal position. In 1896 the same symptoms were observed, and the kidney was

found to be once more displaced. Another long journey by rail once more caused its return to its normal position.

Not long ago Dr. Carrasquilla, of Venezuela, claimed to have treated with successful results some cases of leprosy by means of horse-serum obtained from animals into which serum obtained from lepers had been injected. In a report made to the Academy of Medicine Dr. Hallopeau gave the results of his experiments at the Hôpital Saint Louis. In the first place he complained that the serum contained various bacteria, proving that it had been obtained without the necessary precautions as to cleanliness. It seemed, however, to be well borne by the patients. Both its local and general reactions were moderate, but it did not seem to produce any specific effect, as it neither prevented fresh lesions from appearing, nor were any ameliorations observed which had not at other times occurred spontaneously. However, notwithstanding the unfavorable results obtained thus far it was his intention to carry out still further experiments in the sero-therapy of leprosy.

Dr. Denigis, of Bordeaux, recommends the following solution for antiseptic purposes as not injuring surgical instruments made of iron, steel, or nickel, while possessing the advantages of other mercurial compounds: Distilled water, 1 liter; cyanide of mercury, 2 to 5 grammes; borax, 10 grammes, or carbonate of sodium 14 grammes.

#### *SOLANUM CAROLINENSE.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: In your September number, on page 622, in an article from the May number of the *University Medical Magazine*, you refer to the use of *Solanum carolinense* in the treatment of epilepsy, first recommended by Napier. But I think some credit is due to Dr. F. Peyre Porcher, who pointed out its value in convulsive diseases in his book, "Resources of the Southern Fields and Forests," which was published in Charleston in 1863, by order of the Surgeon-General, Richmond, Va. Yet when the Surgeon-General was publishing his list of "Indigenous Remedies for Field Service and Sick in General Hospital," *Solanum carolinense* was not included amongst those published in the *Confederate States Medical and Surgical Journal*.

Yours truly,

GEORGE FOY.

Dublin, October 8, 1897.

# — THE — Therapeutic Gazette.

WHOLE SERIES,  
VOL. XXI.

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## Original Communications.

### REMARKS ON THE SURGICAL TREATMENT OF GOITRE, WITH A REPORT OF SIX CASES TREATED BY OPERATION, AND ONE CASE CURED BY SPONTANEOUS SUPPURATION.\*

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Since it is my intention in this communication to consider goitre solely from the operative standpoint, this question having been

chosen for presentation because six cases on whom I performed partial excision happen to be in the city and are waiting to appear before you, a discussion of the etiology and pathology of the subject is unnecessary.

Clinically goitre may be classed under three general headings:

1. Tumors either small or large, solid or cystic, which occasion neither local nor general symptoms, and are annoying only because of the deformity they cause.

2. Tumors which by mechanical pressure on important structures cause pronounced local symptoms. The chief of these are pain, tenderness, dyspnea, alteration of voice, and cephalic congestion. The local symptoms

\*Read before the Philadelphia County Medical Society.

caused by these tumors have no necessary relation to either the size or consistence of the growth. In this group there is added to the deformity more or less disability and suffering of intermitting intensity, and a distinct element of danger.

3. Tumors which, either with or without local pressure symptoms, are associated with profound systemic disturbances, the chief of which are aggravated neurasthenia, tachycardia, tremor, insomnia, and exophthalmus. In this group the symptoms are crippling and usually progressive; the whole mentality is changed. The growth may be small or large. Contrary to the generally accepted opinion it is not necessarily more vascular than the solid and cystic goitres of the first two groups. Nor histologically can there be detected any difference in the processes of hyperplasia, infiltration, and degeneration characteristic alike of the exophthalmic, the solid, and the cystic goitres. Even symptomatically there can be drawn no sharp distinction, since it is common enough to observe an ordinary goitre in the course of its growth gradually become associated with symptoms of Graves' disease.

In most of the cases I shall present some of the symptoms of beginning systemic involvement were present, particularly the rapid pulse, sleeplessness, and neurasthenia. In two the exophthalmus though slight was distinct; in none were the general symptoms so pronounced as to justify the name of exophthalmic goitre, though I believe this term as implying a morbid process different from that of ordinary goitre is misleading.

Of the three clinical groups of thyroid enlargements above described, all are proper subjects for surgical intervention, provided a careful trial of medical means, including electricity, has proven unavailing.

In the first group of cases—*i.e.*, those in which the tumor troubles only because it is unsightly—operation usually may be deferred when the growth is stationary or retrograding and when it is not a source of constant mental discomfort to the patient. It is hard to realize how wearing this discomfort may become; to hypersensitive women these growths often assume exaggerated proportions and repulsive features, which they think not only impossible to be hidden by the most skilful draping but disgusting to every one with whom they come in contact. This state of mind entails so much suffering that I believe it in itself is a sufficient indication for operation, even

though the goitre be without symptoms and non-progressive.

When tumors of the first group are steadily increasing in size the operation should be undertaken promptly, since the increase is likely to be progressive and to result in the formation of a growth difficult to remove because of its size or because of the development of pressure symptoms which may make the administration of an anesthetic dangerous.

But one case of those I have shown can be classed in this first group: Mrs. M. wished the tumor removed because it was unsightly and gave her a sensation of dragging and weight. She suffered from neither pressure nor toxic symptoms. She expresses herself as well satisfied to be rid of her growth, which wore upon her because of its fancied unsightliness and apparent inevitableness.

All tumors of the second class—*i.e.*, giving rise to local or reflex pressure symptoms—should be subject to prompt operation, and when there is recurrent dyspnea the indication for operation is urgent.

In tumors of the third class the beneficial effects of surgical intervention are so striking and the mortality following operation is so slight that on the failure of medical treatment there should be no hesitation in advising ligation or partial thyroidectomy.

The *diagnosis* of goitre is usually a simple matter, the tumor springing from the anterior aspect of the neck, being attached to the larynx and when small moving with this structure; when aberrant, as in the case of retrosternal goitres, having a pedicle springing from about the normal portion of the thyroid. When very large the tumor presents a typical appearance, which if taken in connection with the history of the growth is sufficiently characteristic.

Malignant degeneration has in its early course no distinguishing clinical features. The rapidity of growth is often suggestive, and in the case of carcinoma its conformation, the infiltration of surrounding structures, glandular metastasis, and the early development of pressure symptoms would be diagnostic, but not at a time when the patient could be helped by intervention. A causeless, comparatively rapid, relentlessly progressive solid nodular or smooth rounded painful tumor growing from the thyroid of a man over forty years old should always suggest the possibility of malignant degeneration. Malignant degeneration in women is less common.



The *prognosis* of untreated goitre is difficult to formulate. I have found no statistics bearing on this point, but would venture to express the opinion that when the thyroid is once permanently enlarged there is a tendency toward steady growth, and that a patient with a small goitre which is annoying only because of deformity can count as a rule upon a progressive increase of this deformity, so slow that it is noticeable only from year to year—and upon a more or less pronounced chronic neurasthenic condition due to the growth and only to be cured by its removal. Exceptionally the goitre disappears or remains stationary. In a small percentage of cases it grows rapidly, causes more or less pronounced pressure symptoms, and is associated with an aggravated neurasthenia, with dyspnea and heart irregularity especially well marked. In a smaller percentage of cases the disturbance of the vasomotor mechanism of the thyroid circulation becomes especially noticeable, and the pulsating tumor is associated with the characteristic symptoms of exophthalmic goitre. In a still smaller percentage of cases the symptoms of cachexia thyreopriva develop. Exceptionally the enlarged thyroid undergoes malignant degeneration.

It is obvious, then, while the prognosis as regards life is favorable, that the patient who carries a goitre is likely at the best to be subject to steadily increasing deformity and a particularly harassing form of chronic invalidism unreachable by any form of therapeutics; at the worst this patient is exposed to a painful, absolutely crippling, fatal malady.

The treatment of goitre is as a rule relegated to the physician. I believe the usual inefficacy and the possible danger of the iodide treatment is now generally conceded. It is clearly shown that by a general bracing hygienic, climatic, and electric treatment many cases of goitre, particularly those of the exophthalmic variety, may be greatly benefited—sometimes they are cured.

The most promising internal medication is thyroid extract, which, though it has not worked a revolution in the therapeutics of goitre, may be expected to cure a small percentage of cases.

Bruns states that in young children complete recovery is the rule, the remedy being continued with intermissions in case palpitation, diarrhea, headache and tremor denoted hyperthyroidism. But few adults recovered, and even in older children the enlarged thyroid did not shrink to its normal size.

This treatment is contraindicated in Graves' disease, since the symptoms of the affection are supposed to be due to a system supersaturated with the normal or perverted thyroid secretion caused by increased blood-supply and hyperplasia of secreting cells.

Serafine (quoted by *Revue de Thérapeutique*, July 15, 1897) states that treatment of goitre by thyroid gland is best adapted for the form known as struma parenchymatosa. Definite cure is rarely observed and only in young subjects. The results are satisfactory in sixty-three per cent. of cases, the goitre lessening in size. In thirty per cent. of the cases the treatment is absolutely valueless. When goitre has undergone secondary degenerations, such as colloid or cyst formation, the treatment is useless. The effect of treatment is manifested almost immediately, and the dry thyroid is more potent than other forms of the gland. Thyroid is not indicated in Basedow's disease excepting at the very beginning of the affection; when the symptoms are pronounced, not only is the treatment useless but even dangerous. The therapeutic effects are transitory, hence the thyroid extract should be given from time to time.

The operative treatment should properly include galvanopuncture and injection, since it is essential that these procedures should be carried out with attention to the principles of surgical cleanliness. Neither of these procedures requires the administration of an anesthetic, and except in the cases complicated by dyspnea confinement to the bed or even to the house is not an essential part of the after-treatment. Both methods may be indicated when because of a patient's dread of the knife a more radical treatment cannot be adopted. Both have recorded to their credit many cures.

The electric needle can scarcely be expected to prove serviceable when the tumor is made up of one or more large cysts. When the growth is solid its action has proven most satisfactory. The method is not without pain, is followed by inflammatory swelling, and usually requires a treatment prolonged over several months.

Injections of iodine or of iodoform emulsion are probably about as safe as a cutting operation, and provided the treatment is continued weeks or even months, the injections being repeated every third or fifth day, it is likely to cure recent parenchymatous enlargements—fibrous and cystic goitres are not amenable to this treatment.

Brunet records fifty-nine cures in eighty-eight cases treated by iodine injections. Holmes records 111 cures of 183 cases treated, and seventeen of these were exophthalmic—in but thirty-three cases were the results negative. Five to ten drops of iodine tincture were injected at each treatment. A number of deaths are recorded as an immediate result of iodine injection, usually attributable to embolism.

Iodoform emulsion was used by Garré in 140 cases without a fatality and with uniformly good results. About twelve injections were given in each case, the injections containing one grain of iodoform in fifteen minims of a mixture of ether and olive oil.

The mortality of the operative treatment, by which is meant enucleation of cysts or partial resection of the enlarged thyroid, has fallen from over forty per cent. to almost the vanishing point—less than one-half per cent. in over 1500 cases operated on by four surgeons. In 200 and odd cases collected from medical literature by Dr. Francis Patterson and reported by over thirty surgeons the mortality was above three per cent.

*Operative Technique.*—Of the various incisions practised in the removal of the diseased thyroid gland, the transverse is to be preferred since it gives free access to the operative area, is more accurately apposed in suturing, and after healing leaves a much less conspicuous scar. Kocher, whose teaching on this point has been too little regarded, has shown that in a given region of the body two incisions vertical to each other exhibit a varying retraction of the margins; if one gapes widely the edges of the other are apposed even without the aid of sutures. He holds the difference in cicatrization after incision, with or against what Lange calls cleavage lines, is so important that it is serviceable to indicate what may be called normal incisions for every region of the body. These show for that particular region the cleavage line of the skin and at the same time are so placed as to avoid the course of important structures. Especially in the operations for struma Kocher has demonstrated that the cicatrices after normal incisions become so faint in the course of time that they are hard to recognize, while cicatrices following incisions in different directions, especially on the neck, may often cause great deformity by contraction of the folds. The normal incision for the anterior surface of the neck in its upper part is transverse; in its lower part transverse with a slight curve down-

ward. This incision is carried over the most prominent part of the goitre from about the mid-width of one sterno-mastoid muscle to a similar point on the opposite side of the neck. Where the goitre is large and dips well into the chest the angular incision is indicated. This begins over the bulge of the sterno-mastoid muscle at the level of the thyroid cartilage, runs transversely in the direction of the wrinkles to the midline of the neck, and then downward to the suprasternal notch or the middle of the manubrium. After division of the skin and platysma the fascia uniting the sterno-hyoid and sterno-laryngeal muscles on each side is divided and these muscles are separated, exposing the tissues lying below, or are cut completely across. Kocher advises that a portion of their continuity in length should be preserved. The sterno-mastoid muscles are well retracted, as are also the sterno-hyoid and the sterno-laryngeal, if they have not been completely divided, and the fibrous capsule which still invests the goitre is carefully cut through until the surface of the tumor is reached. This is usually brownish or bluish in color and often has enormous veins ramifying over its surface. By means of the fingers and gauze sponges the fibrous capsule is separated from the tumor, any veins passing between these two structures being doubly ligated as they are encountered until the lobe on one side can be lifted forward, thus exposing its posterior surface; the inferior thyroid vein and artery can then be carefully isolated and ligated. The upper or lower portion of the lobe is then turned out, depending upon which is most readily freed from its usually slight adhesions. Vessels are secured between double ligatures and ligated. Beneath the isthmus a ligature is passed by means of a strong aneurism needle. The tumor, the blood-supply of which is thus absolutely under control, is either removed completely, or that portion which is diseased is cut away, leaving the healthy tissue. In the latter case the diseased nodules and cysts are enucleated from the portion of the goitre which has been freed, pressure and traction upon the isthmus or ligature readily controlling bleeding. The tumor of the opposite side is treated in a similar manner. The method just given is essentially that recommended by Kocher, whose immense experience in this line of work entitles him to speak with absolute authority. Preliminary ligation of the thyroids is often not necessary before enucleation of superficially placed cysts.

In the cases which I have shown the transverse incision slightly convex downward gave ample room. Where the growth was particularly large the external laryngeal muscles were extremely thin and were divided completely across, in some cases being reunited by sutures. The freeing of the goitre from its capsule was greatly facilitated by dry gauze sponging, the veins being secured by the double ligature as they were encountered and every effort being made not to tear or wound the tumor in any way. The upper cornua of the tumors were turned out first, the superior laryngeal vessels being secured with double ligature. The main operative difficulty was found in overcoming adhesions posteriorly which seemed to fix the tumor to the deep cervical fascia covering the prevertebral muscles. The inferior thyroid arteries were carefully isolated before ligation, lest the recurrent laryngeal nerve should be injured, and when the portion of the thyroid lying in relation to this nerve seemed healthy it was cut across and left in place, thus effectually guarding against injury of this nature.

The bleeding during the operation, excepting in two cases—one in which enucleation of the cyst was attempted without previous ligation, and the other in which traumatic inflammation rendered freeing of the tumor unusually difficult—was trifling. In the case in which enucleation of the cyst was attempted it was so severe as to threaten death, but the patient made an absolutely uninterrupted convalescence. This case (my first) was ill suited to the operation selected, since the cyst walls were degenerated, calcareous, and adherent, and the growth was extremely vascular. Enucleation should have been preceded by ligation.

In all the cases there was marked post-operative oozing, always, I believe, from the cut surface of the thyroid and probably venous, and incident to congestion due to ether-vomiting. These oozings were so marked that they led me to employ drainage, since twice when this was omitted and the wound healed by first intention a cyst formed, which broke down in about ten days, discharging clots and bloody serum.

Dyspnea following operation was noted in two cases. In one of these the operation was extremely difficult because of previous traumatic inflammation, requiring for its completion nearly three hours. In the other the tumor was unusually large, but the operation was completed without difficulty. In both in-

stances the dyspnea was alarming but transitory. Oxygen inhalations seemed to be particularly efficacious. I believe this dyspnea to have been due to either irritation of the recurrent laryngeal nerve or more probably to laryngitis and trachitis caused by mechanical injury to the parts and disturbance of circulation.

In all the cases there was left as much apparently healthy gland as would equal at least two-thirds of the bulk of the normal thyroid. In one case there had been a three-months' treatment by electricity applied by a practitioner who was thoroughly familiar with this method. The scars resulting from this treatment will in a year's time be far more conspicuous than that made by the cutting operation. It was absolutely inefficacious in so far as reducing the size of the growth is concerned. This was an instance of cystic and solid goitre. At the seat of electrolysis the adhesions were dense, and the limiting fascia was separated from the goitre somewhat less easily than is ordinarily the case. It is noteworthy that in none of the cases was there a history of goitre in the family; in none is it possible to trace any causative factor. The three sisters are of Scotch-Irish-Welsh extraction. There is no case of goitre in the family, no goitre in the families of those with whom they were brought up, and in all the disease in its slightest form was noticed in early childhood.

It is clear from the figures I have quoted that the operation of partial thyroidectomy or of enucleation so little threatens life that its performance may be advised even though there is no more pressing indication for it than for the relief of a distressing deformity.

The common operative dangers—suffocation and hemorrhage—if properly guarded against, are slight; the cardiac disease so commonly associated with long-standing goitre and the pronounced anemia characteristic of marked Graves' disease may, however, make the patient especially susceptible to both shock and hemorrhage, while marked dyspnea always renders anesthetization particularly dangerous. This last complication is usually relieved promptly by dividing the deep cervical fascia and turning the goitre forward; though it must be remembered in subsequent manipulations that the tracheal rings may have suffered pressure absorption and the larynx may readily be kinked or compressed. Laryngotomy or tracheotomy and the placing of long flexible tubes of large caliber in the larynx are sometimes necessary.

The immediate sequels of operation may be: thyroid intoxication, usually transitory; free venous oozing, readily controlled by pressure; consecutive hemorrhage, requiring opening of the wound; dyspnea, due to mechanical handling of the larynx and trachea and in part no doubt to irritation of the recurrent laryngeal nerve, relieved by oxygen inhalation; sepsis, to be provided against by drainage, gauze tampons being employed when an accident during the course of operation, such as the patient vomiting into his wound, leads the surgeon to expect infection.

The remote effect of the operation, provided the portion of the thyroid left after removal of the diseased part should undergo degeneration or should prove physiologically inapt, is myxedema or cachexia strumapriiva, now happily readily controlled by thyroid extract—thus enabling the surgeon to perform a complete operation in malignant cases. In about one per cent. of cases the growth recurs, requiring a second operation.

With the operative dangers so well under control, the percentage of radical cure so high, and the ultimate ill effects so entirely avoidable, it is difficult to understand why partial thyroidectomy is not more popular. Dr. Patterson has collected from the reports of five hospitals in this city—namely, Jefferson, Pennsylvania, University, Presbyterian, and Episcopal—the statement that in the last ten years there were treated in these institutions, usually in the out-patient departments, one hundred and eighty-two cases of goitre. Five were operated on, with one death.

It is evident that but a very small number of goitre cases present themselves for treatment, because of the popular belief that the affection is beyond help except at a grave operative risk; nor is this belief confined to the laity. I have tried to show that the operation is a safe one and that the results are as satisfactory as those from any formal procedure in surgery; and it is in the hope that other patients similarly afflicted may seek relief that these seven patients present themselves to you to-night.

The first case is one of enucleation with hemorrhage:

CASE I.—Mrs. Frances R., aged thirty-three, native of Austria, comes from a region in which goitre is common, although no member of her family has been thus afflicted. When she was a schoolgirl she noticed there was something the matter with her neck, but no distinct tumor was formed until ten years

ago, when she was carrying her first child. Since that time it has grown slowly but steadily. In the last two years she has been subject to attacks of violent dyspnea, many times waking her at night. The tumor varied slightly in size from time to time and would often give her much pain. The head seemed to be full of blood and she suffered from attacks of vertigo. She was subject to most distressing paroxysms of cardiac palpitation.

I operated on her May 13, 1896. The goitre proved to be cystic, involving mainly the left lobe. I endeavored to enucleate the larger cyst, which was about the size of a fist, without previously securing the vessels. The walls of the cyst had undergone calcareous degeneration, were densely adherent, and the bleeding was rapid, severe, and difficult to control. Nearly the whole of the right lobe and a portion of the isthmus were finally removed, bleeding was controlled by hemostats and packing, and the patient was returned to her bed in an extremely exsanguine condition. The pulse was so weak and rapid that I should have performed intravenous saline injection but for the fact that I had recently known of two cases which suddenly died while this procedure was being carried out. She reacted promptly and was sent home on the eleventh day, her convalescence having been uncomplicated.

CASE II.—Mrs. W.; family history entirely free from goitrous trouble. She is of Irish parentage and has always had enlargement of the throat and neck, which she thought was due to bad-shaped throat. The lump has gradually grown and has caused pain. She is short of breath at times; trembling, very nervous. The tumor was larger than the fist, but was not lobulated.

Operation January 13, 1897. The growth was exposed by transverse incision and removed, with the exception of the upper and middle portions of the right lobe, which seemed healthy, although enlarged. The tumor was an example of exaggerated glandular hypertrophy, extremely vascular, and tightly adherent. The wound was closed by percutaneous suture and entirely healed in a week. Three days later it broke down, discharging a considerable quantity of bloody serum. This opening very shortly closed. There was enough of the right upper lobe left in this case to result in some permanent deformity, but the condition was so much better than before that the patient does not object to this. Her general nervous condition is no better than before operation, but

there are other factors contributing to that. She expresses herself as well satisfied with the result.

CASE III.—Miss Sarah B., aged thirty-one, has always been in good health since infancy; thought her neck peculiar in shape. First noticed a distinct lump when she was ten years old; since then it has been gradually growing. Under a course of iodide it was somewhat diminished in size, but again increased on stopping the medicine. She took many drugs, but nothing helped in the least. She suffered at times from palpitation of the heart and dyspnea, and always had a feeling of obstruction in the neck. For the last three years has had singing in the ears and fulness in the head. As a result of violent straining, such as efforts at vomiting, the goitre becomes extremely tender and increases in size. Lately it has grown more rapidly than ever before. The whole front of the neck is occupied by a swelling somewhat larger than the two fists and extending downward well behind the clavicles. There is no pulsation or bruit. Operation was performed in the early part of July, 1897, the usual transverse incision being made and the greater portion of the isthmus and the upper part of the left lobe being allowed to remain. The patient recovered promptly and completely from operation and with very little hemorrhage. The enucleation was not especially difficult. The goitre was solid and cystic, this latter process, however, having developed but slightly. Since operation her neurasthenic condition has completely disappeared.

CASE IV.—Mrs. P., aged thirty-three, in early childhood thought her neck was peculiarly shaped. There was no goitre or tumor history in the family. She noticed a lump when carrying her first child. She has had four children, and since the birth of the last the goitre has grown somewhat rapidly. She cannot wear anything tight about the neck, suffering great pain therefrom, which is referred to the back of the head. She has cardiac palpitation and is short of breath. She suffers from tremors at times. Children are well. There was a lobulated mass with a median transverse furrow producing very marked deformity. Operation was performed August 1. Stripping of the deep capsule was somewhat difficult, and there was more hemorrhage than is usual. Both lobes were enlarged, together with the isthmus. The extension seemed to be upward and downward; the lower borders of the growth passed

slightly below the lower border of the clavicles. The right lobe was removed entirely, the upper and middle portion of the left lobe being taken away, and from the isthmus and lower portion of the left lobe were enucleated fifteen or twenty cysts and adenomatous nodules. The wound was closed by percutaneous suture and drained. The patient made an uninterrupted convalescence and suffered so little inconvenience that for the first three days she could scarcely believe that the tumor had been removed. She is now absolutely well and sleeps well at night—the first time for years.

CASE V.—Mrs. Walter M., the mother of three healthy children, referred to me by Dr. John H. Musser, noticed twelve years ago a growth at about the mid-anterior aspect of the neck on the right side. There is no history of tumor in the family. This growth gradually increased in size, and with especial rapidity during the periods of gestation. The only inconvenience caused by it was a sense of weight and dragging and very obvious deformity; also at times there was slight shortness of breath. Never suffered from palpitations, pains, or aches; has not lost weight excepting during a period of thyroid treatment, when she lost rapidly. The tumor formed a mass about the size of two fists, most prominent at the right side, extending well down to the clavicles. She had in 1889 two months' treatment by the electric needle without deriving benefit therefrom.

Operation was performed in May of this year. The entire right lobe, extending well down behind the clavicle, part of the isthmus, and the upper portion of the left lobe, were removed. The lower portion of the left lobe and isthmus were not interfered with, since these portions of the glands seemed healthy; they perhaps slightly exceeded in bulk a normal thyroid. The portion removed was typically cystic. The wound was closed without drainage by percutaneous suture. There was very little loss of blood. The operation was completed in forty minutes. The night following operation the patient complained greatly of dyspnea and pulse hurry, and the face became greatly congested. This was relieved by oxygen. The following day she was given a bed-rest and the bandages were loosened. Thereafter she had no trouble; the wound healed promptly.

CASE VI.—James O'K., referred by Dr. Barton C. Hirst; laborer; single; aged thirty; Irish parentage. No goitre in the family. He first noticed a lump in his neck ten years

ago. Since then it has been slowly increasing in size. In the last two years it has given him pain when he stooped or lifted. He has not suffered from palpitation, shortness of breath, or profuse sweating. Six days before I first saw him, in the course of a fight he was seized by the throat, since which time he has suffered intense pain, referred to the left side of the neck and running up to the occiput.

The goitre markedly increased in size; the overlying skin was hot and slightly edematous. The growth was somewhat larger than a full-sized coconut; it extended to below the sternal notch. It was exposed by transverse incision, and its overlying fascia was found tightly adherent. Its lower extremity extended fully two inches behind the sternum, and it was fastened so tightly to the deep cervical fascia overlying the spinal muscles behind the trachea and esophagus that its dislocation outwards was a matter of extreme difficulty. This was finally accomplished, and the entire gland with the exception of a portion of the left lower lobe about the size of a normal gland was removed. Section showed numerous recent hemorrhages into the goitre and into cysts which it contained. It was the ordinary parenchymatous variety, and excepting for inflammatory adhesions did not present serious difficulties in removal. The patient made an uninterrupted recovery.

The following was a case of spontaneous cure by suppuration:

CASE VII.—Miss Annie R., aged thirty-three, free from goitrous family history, first noticed a lump in her neck four years ago. This as far as she knows was causeless, gradually grew to about the size of an egg and gave her no inconvenience, except when she wore clothing which was tight about it. She noticed, however, that she was becoming progressively more short of breath, suffered from frequent paroxysms of palpitation of the heart, and became extremely nervous. Also she had recurrent headaches which were severe and persistent, and she felt as if her eyes were bulging from her head. On June 7 the goitre became tender, painful, and enlarged without obvious cause. These symptoms increased for six days, when the tumor had reached the size of a cabbage head, and she felt so prostrated that effort of any kind seemed impossible. When she presented herself at the hospital June 15 her evening temperature was  $99\frac{1}{2}^{\circ}$ , the respirations were 98, and her pulse 120. The next evening the temperature had risen to  $101\frac{1}{2}^{\circ}$ . The whole front of the neck was occupied by a tender,

edematous, fluctuating swelling, evidently an acute inflammation of a cystic goitre. This was incised and a half-pint of sero-pus containing broken-down blood-clot was evacuated. The tumor was drained and continued to discharge for two months. For three days the temperature, pulse and respiration were normal, and from that time the patient has not suffered from palpitation, headache, nervousness, or any of the symptoms which were so pronounced during the period of the rapid growth of the tumor. She expresses herself as being absolutely well.

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*THE INFLUENCE OF DIGITALIS ON THE  
HEART MUSCLE WHEN THE DRUG  
IS ADMINISTERED FOR A LONG  
PERIOD OF TIME.*

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By H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College  
of Philadelphia;

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*WITH A MICROSCOPICAL STUDY AND  
REPORT.*

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By W. M. L. COPLIN, M.D.,

Professor of Pathology in the Jefferson Medical College.

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This paper is based upon a series of experiments designed to determine whether digitalis when administered over a considerable period of time actually increases the development of the heart muscle. There is probably no drug which has been studied more thoroughly at the bedside and in the laboratory than digitalis. Ever since its employment by Witherington and his classical reports upon its clinical uses, clinicians have relied upon it as one of their most valued medicaments. Particularly is this true in diseases of the heart in its valvular forms when compensatory hypertrophy has not taken place by natural processes. Laboratory investigators have studied it also so exhaustively by every means and form of apparatus that we know something of its physiological effects as produced by the administration of single and multiple, or large and small, doses when they are given within a period covering a few hours. While we know certain facts about its acute effects, if I may use such a term, we know little or nothing of what might be called its chronic influence over the heart muscle itself. It is true that a multitude of clinical observers have found the prolonged use of this drug in proper doses to produce an increase in the force of the apex beat of the heart, an increase in arterial pressure, and a slowing of

the pulse-beat, but though these effects are explained by the known physiological influence of the drug the question as to whether the continuous use of digitalis really strengthens the heart has been undecided. By the term strengthen I do not refer to a temporary increase of power produced by stimulation such as follows the use of alcohol or ammonia, but a condition in which by reason of increased muscular development the heart is actually more or less permanently increased in its muscular development and ability to do any extra work which may be thrown upon it. With the experiments made to determine whether digitalis increases the size and force of the pulse wave by influencing systole or diastole I shall not deal, nor will I speak at this time of the effects of the drug upon the nervous supply of the heart and the trophic influences which govern its nutrition, although it is probable that by these influences the effects obtained by its use are in part brought about.

When digitalis is given to a patient with cardiac disease and death takes place, the post-mortem examination usually reveals an increase in the development of the heart muscle, and it has been customary to attribute this solely to the effort made by the system to establish compensation by hypertrophy. The experiments about to be detailed would seem to prove that the increase in muscular development may be in part due to the drug, and explains why it is that digitalis is so much more effective in most cases of valvular disease with failing compensation than any other heart stimulant or tonic, for all the others seem to have, and probably do have, but a temporary stimulating effect.

In a brief paper entitled "The Choice of the Various Preparations of Digitalis," published in the THERAPEUTIC GAZETTE for August, 1897, the writer has pointed out the fact that digitalin, digitoxin, and digitalein are the principles of digitalis soluble in alcohol, and that they are also the principles which chiefly stimulate the heart muscle, the digitalin also stimulating the vagus nerves. On the other hand digitonin depresses the vagus nerves and is insoluble in alcohol. It is therefore manifest that when we desire to aid the heart in cases of valvular disease we should use an alcoholic preparation of digitalis in preference to any other pharmaceutical product or even the powdered drug itself, and this may be accomplished by employing the tincture, or better still, a tested fluid extract which is of known and definite strength.

The experiments were carried out as follows: Search was made for a litter of ten pigs in which each pig would be, at the time of starting the experiment, about the same in weight and degree of development, and in good health. Such a litter having been found of the age of two months, each pig was weighed and the lot divided into two batches of five each, one of which was to act as a control experiment, while the other batch was to receive ascending doses of digitalis. Care was taken in making the division that for each pig placed in batch No. 1 another of as nearly as possible the same size was placed in batch No. 2, so that there might be no difference in size between the control pigs and those which were to receive the drug. As far as possible an equal division was made as to sex. The pigs in each batch were then marked by lead tags inserted in their ears, so that in the event of their escaping from one pen to the other no confusion would arise. The two sets were then placed in two pens side by side and provided with separate feeding troughs so constructed as to prevent spilling of the contents as much as possible. Precisely the same manner of feeding was employed for both sets, the food being first prepared in one receptacle and afterward divided into two equal parts, to one of which, that designed for the second batch, was added ascending amounts of Parke, Davis & Co.'s normal liquid digitalis, a fluid extract which is as nearly as possible a standard preparation containing the active ingredients of the drug, since each package of the crude drug is first tested by physiological methods before it is prepared for the market. This is the only test which can be satisfactorily employed to determine the probable physiological activity of a given sample of the drug over and above those commonly resorted to by pharmacists and chemists who estimate the probable value of a given fluid extract or tincture by ascertaining the amount of extractive, which indicates that the crude drug has been properly exhausted. It is not possible at present to make a chemical assay of digitalis.

Before the experiment began the pigs were weighed and were described as follows (January 2, 1897):

CONTROL FIG.		Weight.
No. 1 (boar)	.....	35 lbs.
No. 2 (boar)	.....	36½ lbs.
No. 3 (sow)	.....	39 lbs.
No. 4 (sow)	.....	33 lbs.
No. 5 (boar)	.....	40½ lbs.
Total weight	.....	184 lbs.

## DIGITALIS FIG.

	Weight.
No. 1 (boar).....	37¼ lbs.
No. 2 (boar).....	35¾ lbs.
No. 3 (sow).....	38 lbs.
No. 4 (boar).....	31 lbs.
No. 5 (boar).....	43 lbs.
Total weight.....	184¼ lbs.

The first dose of digitalis was given on January 14, 1897, owing to the delay of the apothecary, who had sent for the particular preparation demanded. The dose was ten minims of the "normal liquid" named, given to the five digitalis pigs night and morning, or approximately two minims to each pig twice a day. The dose of the same preparation for man is from one to three minims a day. On February 14, one month later, the dose was doubled, and on March 14, two months later, tripled (thirty minims). On April 3 it was raised to forty minims, and on April 17 to fifty minims. In other words, each pig received about ten minims twice a day after this time. As the weight of the pig was much less than that of a man this dose was equal to about 60 to 100 minims of the fluid extract a day per pig. This is a very large dose, but produced no ill effects owing to the ascending doses and probable partial immunity.

As early as the middle of March the farmer reported the pigs that were "getting the medicine . . . livelier and bigger than the ones that are not getting it."

On May 2, 1897, about four and a half months after the beginning of the experiment, the pigs were weighed on the same scales and killed by a butcher by an incision across the aorta (death by hemorrhage). The hearts were removed by me and carefully weighed after the cavities had been cleaned of blood and clots by the use of clean water poured through them. The results were as follows:

## CONTROL FIG.

	Weight.	Weight of heart.
No. 1.....	78 lbs.	5 ozs.
No. 2.....	78 lbs.	5 ozs.
No. 3.....	87¼ lbs.	5½ ozs.
No. 4.....	55 lbs.	4 ozs.
No. 5.....	99 lbs.	6¼ ozs.
Total weight.....	397½ lbs.	25¼ ozs.

## DIGITALIS FIG.

	Weight.	Weight of heart.
No. 1.....	82¼ lbs.	5 ozs.
No. 2.....	83 lbs.	5½ ozs.
No. 3.....	86 lbs.	6 ozs.
No. 4.....	70¼ lbs.	5½ ozs.
No. 5.....	95½ lbs.	6¼ ozs.
Total weight.....	417¼ lbs.	28½ ozs.

It will be seen from this record that the total weight of the control pigs is less by about twenty pounds than the digitalis pigs, and that the hearts of the control pigs weighed less by  $3\frac{1}{4}$  ounces than the hearts of the digitalis pigs. It is true that in pigs No. 1 and No. 5 of the digitalis series the hearts weighed the same as the control pigs, but on the other hand it is a fact that in No. 5 the control pig weighed more than the digitalis pig.

While these results, so far as weight of the animals and the hearts are concerned, are not sufficiently in favor of the digitalis to prove simple cardiac hypertrophy under its use, it is interesting to note that the increased activity of the circulation in the digitalis pigs resulted in an increase in general activity during life and greater weight by twenty pounds.

The hearts were now placed in separate jars containing formalin solution and shipped to the Pathological Laboratory of the Jefferson Medical College, to Dr. W. M. L. Coplin, Professor of Pathology, whose microscopical report is appended, and to whom the writer is under great obligations for the careful study which he has made.

## REPORT.

Specimen of pigs' hearts sent to the Laboratory by Professor H. A. Hare.

Ten pigs' hearts preserved in formalin, strength of solution not stated.

Five specimens were in jars marked with Arabic numerals, and five in jars labeled with Roman numerals; those in Arabic, in addition to the number, have upon each label the word "Digitalis," while those numbered in Roman numerals have nothing on the labels but the number.

On macroscopic examination the ventricular wall is very much thicker in the digitalis hearts than in the others; it also cuts with more resistance, and seems uniformly firmer. The increase in the thickness of the left ventricular wall is very much more marked than of the right.

The fixation has not been perfect, and the deeper layers of the muscles have not been penetrated by the formalin. In order to make a microscopic study of the specimens, pieces were taken from near the apex of each ventricle, and all of the specimens treated exactly alike.

The blocks of tissue removed were placed in separate containers and the container numbered, the corresponding number being placed in a note-book, with the number of the heart



and the number of the specimen, so that during the subsequent examination it was not known whether the observer was working with tissue from one or the other heart.

Each piece of tissue was dehydrated in alcohol, cleared in cedar oil, infiltrated with paraffin, sectioned, and cemented to the slide, cleared up, stained with hematoxylin and eosin, dehydrated, cleared in creosote, and mounted in balsam.

Measurements were made by means of the filar micrometer, the rulings having been previously standardized with a stage micrometer for  $\frac{3}{4}$  and  $\frac{1}{8}$  objectives, and a tube length of 160 millimeters.

The tissue was mounted in two pieces so as to secure transverse and longitudinal sections; three sections were mounted from each block, and three measurements made from each section, the mean taken for the record; altogether, 270 measurements were made from each series, with the following results:

Of the hearts from the pigs which had not had digitalis the following results were obtained: No. 1, .1166 millimeter; No. 2, .1125 millimeter; No. 3, .0916 millimeter; No. 4, .0833 millimeter; No. 5, .0791 millimeter.

Digitalis hearts give as an average of all the measurements: No. 1, .1125 millimeter; No. 2, .1166 millimeter; No. 3, .1208 millimeter; No. 4, .1166 millimeter; No. 5, .1208 millimeter.

It is well known that the size of the muscular fiber varies widely; measurements being given as .05 millimeter to .25 millimeter. The size of the muscular fiber is alleged to depend upon the activity of the muscle, the condition of its nutrition, and the condition of the muscle at the time of measurement—that is, whether the fiber measured is relaxed or contracted. It is presumed that under nearly all conditions the measurement is made in the condition of contraction, and particularly is this true of a heart in which the cavities are so readily emptied by bleeding, as occurs in the ordinary method of killing lower animals. Taking into consideration the age of the animal, its general nutrition, the method of killing, and the subsequent contraction of the heart, it is to be inferred that the measurements above given are made under conditions favorable to obtaining the highest measurement.

The highest measurement of the normal heart (.1166 millimeter) is higher than the lowest measurement of a digitalis heart (.1125 millimeter), but the lowest measurement of the normal heart (.0791 millimeter)

is far below the measurement in the heart from the pig which had had digitalis (.1125 millimeter).

Taking the sum of the measurements of the five hearts from animals having had digitalis, and deducting from that the sum of the measurements of the five hearts from animals which had not had digitalis, we find that the difference is .1042, which divided by five, in order to reduce it to the unit of one muscle fiber, gives us a result of .0208 millimeter, which represents the mean increase in size of the heart muscle fiber in the animals which had digitalis.

While this difference, amounting practically to .02 millimeter, strikes us at first as being very small, when we come to remember that it is between one-fifth and one-tenth the diameter of the muscular fiber under ordinary conditions, it practically accounts for the increase in the size of the heart without the necessity of referring that increase to the growth of new muscular fibers.

Thus, if it can be demonstrated—and the above calculation seems to do as much—that there is an increase in the diameter of the muscular fibers amounting to one-tenth, and if under the administration of digitalis the weight of the heart is increased one-tenth, it would then seem probable that the entire increase would be due to an increase in the size of the muscular fibres, rather than to an increase in the number. If, however, heart No. 1 (digitalis) weighs more than the normal, the increase could only be explained by assuming an increase in the number of the muscle fibers.

In conclusion I wish to thank Dr. W. P. Read, assistant in pathology, for valuable aid in conducting this rather tedious and prolonged investigation. Dr. Read infiltrated, sectioned, stained, and mounted the tissue; and working together we duplicated all measurements in order to, as fully as possible, control our results. We have separately conducted the calculations for a mean result in each set of measurements in both series, in order to avoid mathematical error, and to further avoid this danger all vulgar fractions were calculated with a denominator of five figures, and decimal fractions to four figures; the results obtained by both systems were acceptable only when they coincided.

The fact that on macroscopical examination the ventricular wall is much thicker in the digitalis hearts than in the hearts of those animals which received no digitalis, as noted by Professor Coplin, was also remarked

upon by the writer when the pigs were killed. This point seems to be of great importance, and its interest is increased by the additional statement that the muscle cut with more resistance and seemed uniformly firmer. Another point of very great interest is that the increase of the left ventricular wall was far greater than of the right.

In this connection it is of interest to consider for a moment the theory that the pneumogastric nerves, for which digitalis has an especial affinity, are the trophic nerves of the heart, and if this be so it is not hard to understand why digitalis increases the size of the heart muscle. Whether this trophic influence be exercised or not, it is well known that the effects of this drug upon the heart are such that its muscle fiber obtains a greater supply of blood with each cycle by reason of the increased force of the systole, the heightened arterial pressure, and the prolonged and increased diastole.\*

This research would therefore seem to prove that the prolonged use of digitalis is capable of producing cardiac hypertrophy in the normal heart, and if this is the case it is fair to assume that when the drug is given to a man suffering with valvular disease with deficient compensation it must aid materially in inducing compensatory hypertrophy, in addition to any immediate stimulant action which it may exercise in the circulatory apparatus.

#### *PSEUDO-MEMBRANOUS LARYNGITIS.*

BY BURT RUSSELL SHURLY, B.S., M.D.,  
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In a discussion of pseudo-membranous laryngitis or laryngeal diphtheria it is not necessary to emphasize their histological identity, or to consider in detail the various pathological questions that have agitated the profession from time to time. From a pathological standpoint it is sufficient to recognize that pseudo-membranous laryngitis is in the great majority of cases diphtheria, and can be demonstrated as such by the culture tube.

The etiological factors of membranous croup are numerous. Conditions favoring the growth of the Klebs-Loeffler bacillus are especially prevalent in our large cities. The presence of the bacillus in these cases is so

frequent that we must consider its growth as the direct cause of all cases, unless we have positive bacteriological evidence of its absence. Croup develops more frequently during the fall and winter months, when high winds prevail accompanied by cold and moisture. Poverty and ignorance, with the attending exposure and unhygienic surroundings, subject the children of the lower classes to disturbances of circulation that render them highly susceptible to microbic invasion.

As a complication of measles or scarlet fever the Klebs-Loeffler variety is comparatively rare, though exceedingly fatal. Hypertrophied tonsils, adenoids or other chronic inflammations of the nose or throat increase the susceptibility. Age is an important factor; the frequency of croup increasing from infancy to five years, when it rapidly decreases.

Loose methods of quarantine, although the best possible under the present conditions, are responsible for much indirect infection. Bad drainage and sewerage seem to be factors in its frequent occurrence along the unpaved streets. Laryngeal diphtheria is contagious largely in its own peculiar type; three or four cases of the primary variety often appearing in one family. Five families under my observation developed two severe cases each, making ten intubations with nine recoveries.

The initial symptoms of laryngeal invasion are hoarseness and a characteristic cough. The later symptoms—increasing laryngeal stenosis, the accelerated pulse, and rising temperature—indicate the onset of a graver stage of the disease. The struggle for air becomes gradually worse; cyanosis develops; the blue lips and finger-nails, a clammy skin, rude respiration, hyperpyrexia and semi-stupor complete the clinical picture of a case rapidly approaching a fatal termination. Such is the usual history of neglected cases, asphyxia occurring among children under three years in thirty-six to forty-eight hours. Many cases develop much more slowly, however, continuing for a week or ten days before grave dyspnea develops. Toxic absorption from the larynx is gradual and comparatively feeble.

Laryngeal diphtheria must be diagnosed from bronchopneumonia, acute laryngitis, laryngismus stridulus, and foreign bodies. With a thorough history, a bacteriological examination, inspection of the throat and larynx, and attention to the characteristic sounds of laryngeal obstruction these cases may be differentiated.

\* See article on Digitalis in author's *Text-book of Practical Therapeutics*.

Retro-pharyngeal abscess can be excluded by digital examination. The presence of a tonsillar exudate and attending hoarseness usually marks the onset of the disease, and in children between the ages of one and six years should be considered diphtheria. Ninety per cent. of croup cases without treatment succumb. The result depends largely on the age of the child. From infancy to two years the progress is rapid and bronchopneumonia frequent. Nasal stenosis from any cause, but especially from adenoids, makes the prognosis much more grave. Under the most modern treatment without antitoxin statistics show a mortality of sixty to seventy per cent. In my experience of 121 cases seen in consultation during the past year, ninety of the most severe type were intubated, with a mortality of twenty-six, or 28.9 per cent.

In considering the therapy of laryngeal diphtheria we find no more forcible demonstration of the marvelous results of scientific research than is shown by clinical observations and study of the curative and prophylactic effects of antitoxin. Collective investigation statistics furnish a most convincing argument in its favor. The mortality in children under two years is reduced from sixty per cent. to 33.3 per cent.; many cases of laryngeal stenosis are relieved without operation.

According to the latest opinions of clinicians of the largest experience there is only one safe method of treatment in cases of membranous croup, and that is to consider every case diphtheria until it can be proven something else; meantime administer antitoxin. Treated along this line of therapy the method becomes exceedingly simple. In every case of invasion of the larynx there are two prominent indications that confront us: (1) Prevent extension of the membrane to the bronchi; (2) relieve the laryngeal obstruction. The combination of antitoxin and intubation does the work. New and striking confirmation of their efficacy is presented in every statistical report. Welch shows a reduction in the mortality of intubated cases from 62.4 to 31.6 per cent.

Emetics and the numerous solvents that were formerly relied upon have now only a limited use. Calomel, iron, and the bichloride of mercury are valuable accessories in a large number of cases. One specific with its strikingly beneficial results admits of no substitutes. Exactness, simplicity, and highly satisfactory results are now possible in the

treatment of this disease. The therapeutic measures resorted to in every case should include: Antitoxin 1500 to 2000 units administered as early as possible and repeated within twelve hours if the symptoms do not show marked improvement; 5000 units may be necessary. A liquid diet is of the greatest importance, as much embarrassment of respiration often results from overloading the stomach. Milk administered at frequent intervals and in small quantities, albumen water and beef broth furnish sufficient nourishment. Chipped ice and steam inhalations will relieve the thirst. Calomel should be administered at the onset to unload the bowel, and in children too young to expectorate should be repeated in twenty-four hours, so that the swallowed secretions may be passed by the bowel. Judicious stimulation with whiskey and strychnine should be carried out in all cases, whiskey being of special value in intubated cases to excite a cough when the tube shows a tendency to fill with mucus. Intelligent nursing is an important feature in the treatment of these cases that must not be overlooked. In nine intubated cases under my observation where a trained nurse was employed seven recovered, the two fatal cases occurring from pneumonia, a grave prognosis having been given before the nurses were called.

An ice-collar or iced cloths applied over the larynx have a tendency to modify the rapid growth of the bacilli. Sprays or irrigations of peroxide of hydrogen and lime-water diluted should be used in the throat where the age of the child permits. Turpeth mineral in doses of two to five grains, repeated in fifteen minutes if necessary, is usually a prompt emetic. Its use is now extremely limited, although it has proved very efficient in temporarily relieving asphyxia while awaiting the arrival of an intubationist. The continued use of emetics, however, is decidedly injurious to the patient.

The prophylactic treatment of diphtheria is not given the attention its success deserves. Antitoxin in doses of 250 to 500 units is a valuable aid to the natural powers of resistance. The immunity it confers can be relied upon for at least two weeks, and in many cases is sufficient for a month. Its use in the large children's hospitals of Boston and New York, and the Children's Free Hospital and the Woman's Hospital of Detroit, have thoroughly demonstrated its value as a preventive measure in epidemics.

In neglected cases, and at times in spite

of the most careful treatment, the laryngeal stenosis gradually increases, restlessness and recession of the chest walls is noted, when the propriety of surgical interference should be considered. The judgment that decides this problem under our modern methods of treatment must be based on a wide experience and a thorough knowledge of what antitoxin will do. The choice of surgical measures has been decided by the results of experience, and intubation as a primary operation has entirely superseded tracheotomy. Dilatation and catheterization of the larynx have been abandoned. Since the introduction of antitoxin intubation has fulfilled every requirement as a relief for laryngeal stenosis, and its general adoption by the profession of the old world seems only a question of time.

With the increasing knowledge of the merits of antitoxin and a keener appreciation of its curative effects it seems only rational to predict a still greater decrease in the mortality of croup.

From a study of this subject the following conclusions seem justifiable:

1. Laryngeal diphtheria is particularly contagious in its own peculiar type; therefore immunize all exposed children of croup age.

2. Hoarseness and laryngeal cough following an exudative tonsillitis are sufficient indications for the administration of antitoxin.

3. In measles or scarlet fever the complication of croup should receive prompt treatment.

4. The earlier in the course of the disease antitoxin is given the more favorable the prognosis becomes.

5. Cases intubated in the comatose state just preceding death will show fifty per cent. of recoveries.

The antitoxin used in all of the 121 cases considered in this article was obtained from the Detroit Board of Health, and bore the label of Parke, Davis & Co.'s Biological Department.

#### THE OPERATIVE TREATMENT OF HEMORRHOIDS.

BY GWILYM G. DAVIS,

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From the amount which is written in the medical journals on this subject one would think that it was thoroughly exhausted. I take it, however, that it is rather an evidence that the professional mind is decidedly at sea as regards the best methods to be pursued.

It is a subject that demands more serious consideration than it often receives. To judge from much that is written one would think that an operation for the cure of hemorrhoids was easy and simple of performance, quick in healing and recovery, and accompanied with little discomfort to the patient and any amount of glory to the surgeon. That this is so of some cases is no doubt true, but not of all. In my opinion the operation is one that demands both skill and great care in its performance, as well as in the after-treatment, otherwise the patient will suffer considerable annoyance and discomfort and the results be more or less disappointing. Two operations—ligature and the clamp and cautery—are usually done. If one was to judge by the number of adherents the clamp and cautery is the more popular. The ligature has, however, among its advocates so many good and true men that it certainly can be considered a perfectly proper and efficient mode of procedure. Recently another plan has been coming into use—that of excision. It is this which I prefer to use when possible.

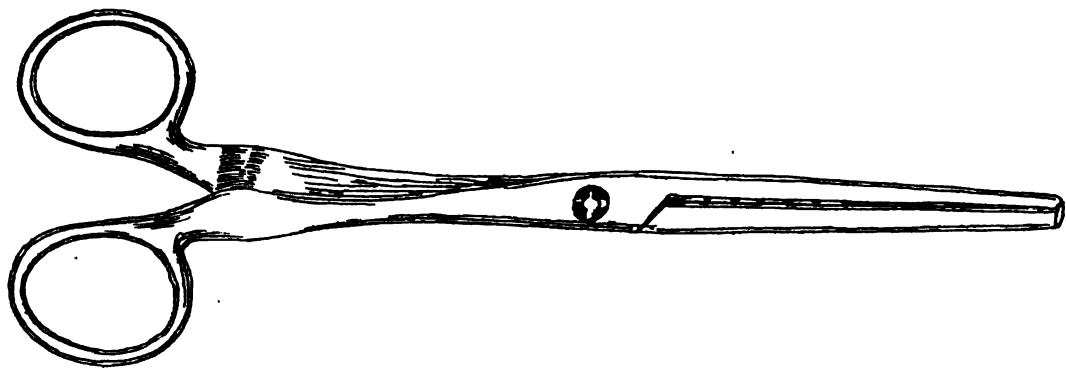
When the hemorrhoids are limited in number and extent, forming two or three distinct projecting masses, then they can be dealt with effectively by almost any method. The clamp and cautery I dislike principally on account of the insecurity it gives as regards bleeding. My experience has been that after the most careful cauterizing of the stump, when the clamp is released there is often such an amount of bleeding as to require either a reapplication of the cautery or the application of a ligature—usually the latter. In the subsequent manipulation required to cauterize the remaining hemorrhoids the eschar attached to those previously treated is apt to be detached and bleeding again set up. Even after the patient has been put to bed I have known hemorrhage to occur and occasion the attendant considerable trouble and the patient much distress before it was controlled. If narrowed down to a choice my preference would be the ligature. The advocates of the cautery would say that a *proper* method of employing it would obviate the objections stated; to which one might reply that if too much of the submucous tissue is not included in the ligature the occurrence of pain would be avoided. The object desired is to elaborate a perfect technique. A common and annoying occurrence is the presence of feces at the time of operating. A usual mode of preparing a patient for this operation consists in administering a purge, fol-

lowed on the morning of the operation by an enema. Sometimes this is sufficient and sometimes not. It is far better to administer a purge on at least two successive days previously, and then on the day of operation to give an enema of plain soap-suds early in the morning and another just before operating. The patient should be restricted to liquid diet for at least twenty-four hours previously. Even this may not prevent feces from coming down, but it is far more apt to ensure a clean operating field than is a single dose of purgative medicine and one enema. The next thing to do is to stretch well the sphincters. This in itself will sometimes cure hemorrhoids, while if it is omitted the spasmodic contraction of these muscles after the operation will be the cause of considerable pain. Then introduce a speculum and study the diseased area and formulate a plan of attack. Observe if a fissure is present; if so, take care

This procedure is done two, three or four times, as necessary.

The operation is completed by inserting with a curved needle and catgut as many sutures as may be desired to approximate any cut or bleeding surfaces. The sponge is to be removed and a suppository of iodoform and opium inserted, some powdered iodoform dusted on the wounds, cosmoline smeared on the surrounding parts, and a pad of gauze and a T-bandage applied.

In ligating the tissues clamped it is better to do so by several single stitches instead of using one continuous stitch, such as that used by saddlers. When the clamp has been used as often as has been thought desirable, as sometimes occurs, and there still remains a suspicious pile-like area, it has been my practise sometimes to pass a catgut ligature through it and ligate it, so to speak, subcutaneously. This is only resorted to when it



to include and remove it in operating. Introduce a large sponge or piece of gauze through the speculum so as to prevent as far as possible any discharges from coming down. With a hemostatic forceps grasp the apex of a pile and raise it and apply the long, slender-jawed forceps shown in the illustration—made two or three years ago for me by D. W. Kolbe & Son—clamping tightly. With a round sewing needle threaded with catgut pass a stitch through and back again beneath the clamp and tie. Repeat this until the whole amount of tissue included in the clamp is ligated.

It is essential that a round and not a sharp cutting needle be used. The latter of itself will cause annoying bleeding. If the skin has been included in the grasp of the clamp an incision should be made through it with a scissors; the catgut ligature will then lie in it. The portion of the pile above the clamp is then cut away and the latter loosened. If there be any bleeding points they should be caught with forceps and ligated with catgut.

is not desired to excise any more tissue on account of the liability of producing stricture. In extensive cases in which the entire anal mucous membrane is involved I resort to Whitehead's operation of complete excision.

The patient after the operation is kept on liquid diet. The next problem is to have the bowels move without pain to the patient. This is accomplished on the fourth day, or when a desire for a movement is experienced, by introducing a two-way catheter or even a large single catheter and washing away with warm saline or borax solution any accumulated feces. This procedure may be repeated once the next day or day after, and then teaspoonful doses of Epsom salts given until thin, watery movements occur. These will take place without pain or straining, after which the patient is allowed out of bed.

This line of procedure is not given as a perfect solution of all the questions involved, but it is the one that has given me the greatest satisfaction. I can leave the patient,

after the operation, with a sense of security, feeling that neither he nor myself will be incommoded by subsequent hemorrhage and the "passing of tacks," an experience usually complained of if the bowels are allowed to move unaided.

#### ON THE REPAIR OF WILL LOSS.

BY J. MADISON TAYLOR, A.B., M.D.,

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In the *International Clinics* for July and October I wrote a series of articles on the subject of the disturbances of volition such as are so commonly the sequences of long-continued illnesses and half-invalid states, baffling the best efforts of physicians, and forming the ground in which much future wretchedness may and does grow. It occurs to me that a summary of the points aimed at might prove useful and suggestive to the readers of the THERAPEUTIC GAZETTE. A large proportion of those who apply to the physician for advice have suffered their evil state for months or years, gradually drifting into one or another phase of self-deception and misconstruction, till not only are invalid habits contracted, most difficult of dislodgement, but there comes finally an utter incapacity to honestly relate symptoms or judge of the due importance of one or another item of indisposition, causing the sufferers to unwittingly deceive both themselves and their medical director.

My suggestions are eminently practical (illustrated by typical instances) and divided into: First, such hints as shall help the physician to protect himself against misinterpretation; second, estimation of the grounds of evidence as shall enable him to predicate whether, under the usually complicating circumstances of life and environment, he may expect a cure or only partial relief; third, points of differentiation between how much or how little of benefit may be reasonably expected in each of these most puzzling and complicated cases; and fourth, hints are offered how to proceed in striving for howsoever much is possible of restoration to mental and physical vigor.

It will be obvious, when this outline is contemplated, that satisfactory results can only be accomplished among these folk by thoughtful classification of the special varieties and needs of each case; because this form of disorder is always of slow growth and due to overmuch self-sollicitous and

family attention, much comparison of thoughts and feelings both from these sources and the various physicians honored by their confidence, until at last the product is an exceedingly weird and impressionistic picture of physical and mental disrepair.

One point is common to all such cases—a distortion in the consciousness, a deficiency in normal volition or impulse, amounting to what I call, for want of a better term, "will loss" or perturbation; and upon this single item most of our attention must be focused.

Long protracted ill health produces an almost inevitable misconception of the status of the individual, especially as to his or her actual needs. The springs of action from frequent interferences discharge irregularly, and control influences (normal inhibition, etc.) become palsied and dead. These cases of "will loss" become, oftentimes, exceedingly accomplished critics of medical men, their manners, methods, powers, and limitations, and above all of their peculiarities and weaknesses. Thus the last physician consulted is in a false and perilous position, and woe betide him if he fail to realize his jeopardy! If the patient applies for advice frankly and puts himself, or is put by his family, unreservedly in the hands of the leech selected, all will as a rule go well.

Any sensible, competent medical man who once becomes familiar with the matter and gets the patient fairly in his full control is probably able to arrange a line of procedures; and, if he be resolute and resourceful, can push these to a successful issue. Far otherwise is it where a perpetual distrust befores the already sick consciousness—where suspicion, distrust and conceit induce the sufferer to begin treatment by all sorts of reservations, stipulations for special privileges, and in various ways to assume an attitude of unhelpfulness, advancing weird theories on the "case," and specifying the particular atmosphere in which alone such a one is content to dwell while submitting to repair measures.

Here are all the elements of difficulty and disaster, especially where these reservations include submission to only so much of treatment as is practically unessential, excluding too often those points absolutely imperative. The first measure of relief is a clear understanding of the pathological items; next comes the individual peculiarities; then the family views—including the amount of authority with which they are willing to invest the physician, who should have full control; also the financial status must be defined—

learning how much is possible to be done in the way of furnishing rest, nursing, change of scene, etc.; then comes a clearing away of all old moth-eaten relics of medical misconceptions; and a healthy mental attitude must be induced, at the head of which stands a fair-minded obedience to that mutual agreement which should be defined and entered upon betwixt patient and physician. Then follows a host of needful points, chiefly of a psychological nature, involving moral problems; and finally, a gradual upbuilding of wholesome volition, an acquirement (in which the physician acts as "guide, philosopher, and friend") of healthy views on the duties and privileges of life as it opens up to each one.

### *THE TREATMENT OF THE MALARIAL FEVERS.*

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The malarial fevers, while all depend upon the same specific cause, occur in several clinical forms, which may be classed in four groups:

1. Intermittent fever, characterized by the paroxysm, which typically consists of the three stages of chill, fever, and sweat; and the intermission, during which the temperature is normal and the patient in comparative comfort.
2. Remittent fever, in which the temperature never reaches normal, consisting of a series of exacerbations and declines.
3. Pernicious fever, with severe symptoms and rapidly fatal end.
4. Malarial cachexia, with anemia and enlarged spleen, due to a chronic infection.

The researches of Laveran, followed by those of Marchiafava and Celli and many other observers, have enabled us to attribute a common origin to all these forms and to diagnose them accurately, by showing that the causative factor, the plasmodium malarie, is always present in the blood of patients affected with malaria, and can there be demonstrated in case of doubtful diagnosis. They have also elevated the treatment of malaria from the domain of empiricism to that of scientific therapeutics, by showing that the specific, quinine, in solution in the blood acts as a direct poison to the malarial organism with which it there comes in contact.

Certain indications are common to all forms of malarial infection. These I shall mention

first, afterwards taking up the special points connected with each type which demand attention.

Cinchona and its products are the specifics for malaria, and of these quinine is the type. It may be administered by the mouth, by rectal injection, in suppository, hypodermically, by intravenous injection.

For administration by the mouth the sulphate of quinine is usually prescribed. In ordinary cases it is best given in the form of pills or capsules to conceal the taste. These should be fresh and easily soluble, so as not to pass into the intestine undissolved, as the alkaline juices there form an insoluble precipitate with quinine, preventing its absorption. It is taken up from the stomach and circulates in the blood as the chloride. Very large doses are apt to irritate the stomach, consequently when a very strong impression is desired it is better to divide the dose and give part by the stomach and part by the rectum or hypodermically. When there is urgent need for an immediate effect it is better to disregard the taste and give in solution, which can be effected by the addition of aromatic sulphuric acid in the proportion of one minim to each grain of the alkaloid. When in solution no vehicle will mask the taste, but if necessary the back of the tongue can be painted with a two-per-cent. solution of cocaine to destroy this sensation.

In some cases, especially with children, the patient is unable to swallow pills or capsules. Here the salt can be given in suspension and the taste modified by some vehicle. Acid is not to be added, as it will form a solution and the taste will not be masked. Licorice and yerba santa are excellent vehicles for use in these cases; for example:

R Quinine sulphate, 16 grains;  
Syrup yerba santa comp., 2 ounces.

M. Sig.: Teaspoonful three to five times a day, for a child of one year.

Chocolate is another vehicle, in which the tannate is often given in the form of confections. Though tasteless, the tannate is of very low alkaloidal strength (22.6 per cent.), hence a large dose is required.

Quinine is readily absorbed from the rectum, and may be given either in enema or in the form of suppository. Ten to thirty grains may be used, dissolved with the aid of acid as above, and given in starch water. Opium may be added to prevent the tenesmus which is unfortunately apt to ensue. Sup-

positories are made in the usual way, with cacao butter as the basis.

Hypodermic injections of quinine are apt to be painful, but the action is prompt and decided, and this means of entrance is particularly valuable in cases of coma, irritable stomach, etc. Injections into the calf of the leg seem to be particularly painful. The point of election is midway between the great trochanter and the tuberosity of the ischium. Probably the best salt for use by this means, when obtainable, is the (unofficial) carbamide hydrochlorate or hydrochlorate of quinine and urea, which dissolves readily in its own weight of water, and is unirritating to the tissues even in concentrated solution. The bisulphate has been recommended, with the addition of tartaric acid (one grain to five of quinine) to the solution to maintain the acid reaction and prevent precipitation in the tissues by the alkaline juices. The hydrochlorate is much used, on account of its solubility. Should all these be obtainable, the sulphate can be utilized in the method recommended by Dr. George Dock, as follows: The solution is made in the strength of ten grains to one fluidrachm, so that a hypodermic syringe will contain from three to five grains. The capacity of the syringe should be accurately known. The salt is mixed with distilled water, adding dilute sulphuric acid drop by drop until the whole is dissolved, and then adding water to make the required quantity. The injections should be made deeply. The resulting pain can be alleviated by hot applications.

The method of intravenous injection devised by Baccelli is indicated in desperate cases, where other avenues fail; and its use under these circumstances has been attended with brilliant results. The solution he recommends is as follows:

- ℞ Quinine hydrochlorate, 15 grains;
- Sodium chloride, 12 grains;
- Distilled water, 2½ fluidrachms.

Having been boiled and filtered, the solution is injected preferably into a vein of the leg as being some distance from the heart, concentrated solutions of quinine being direct local depressants to the heart. The strictest asepsis should be practised.

The enormous doses of quinine which were once given have been shown to be excessive. Binz, by experimentation, showed that in solution of 1:20000 quinine was quickly destructive to organisms similar to the plasmodium malariae, and a dose of five grains will make a solution in the blood of a strength

approximating 1:16000. Clinical experience also has proven that in the milder forms of the infection from fifteen to thirty grains between the paroxysms is sufficient to arrest them. In the pernicious form, however, it must be pushed for its effect. The hypodermic dose should be about one-half that by the mouth, and when used by the rectum the dose should be somewhat more than by the mouth. For children, Rotch gives the dose as half a grain for six months and under, and at the rate of one grain for each year of age over that, up to the adult dose. In some persons even small doses of quinine produce very unpleasant effects, in the shape of eruptions, tinnitus aurium, vertigo, and other symptoms of excessive cinchonism. In some of these cases if quinine can be used in minute doses it will have the same effect as the full doses in individuals without the idiosyncrasy. In other cases some other means must be adopted to combat the infection. Of these, arsenic is valuable in the more chronic cases, but is of comparatively little benefit in acute malaria, a very large dose being required for any effect at all. Methylene blue, in dose of one to four grains, is one of the best substitutes for quinine. Narcotine, two to five grains three times a day, is recommended by Ringer as having marked anti-periodic effects. Certain drugs are useful to combat the unpleasant effects of cinchonism. Morphine, one-sixth of a grain hypodermically, with one one-hundredth of atropine, not only does this, but acts as an adjuvant to the quinine in curing the disease as well. Ergot and the bromides, given with quinine, mitigate the unpleasant effects. A convenient method is to give the quinine dissolved in dilute hydrobromic acid. It is now seldom necessary to resort to these means, as the modern method of smaller dosage has done away with the worst of the effects which used to be so pronounced. All the succedanea of quinine are vastly inferior to it in effectiveness, and should be adopted only in the presence of direct contraindication to that drug. The fear of producing an abortion should not prevent the use of quinine in pregnant women, as it has little or no effect upon the uterus except at term. The malaria, if not checked, would more likely cause abortion than the quinine.

*Intermittent fever* is at once the most common form of malaria and that most amenable to treatment. If seen during a paroxysm the administration of quinine should be delayed,



as it will not abort the attack, but will rather increase the discomfort. A hypodermic of morphine at this time will do much to mitigate the severity of the symptoms; or one-fifth of a grain of pilocarpine hypodermically will have a like effect. If the chill be severe stimulants may be needed, with friction, hot applications, etc. During the fever ice, ice-water and acidulated drinks may be used to allay the thirst, with spongings and the ice-coil if the temperature should become excessive.

It is during and after the sweating stage that the specific treatment is to be carried out, and it should be pushed energetically with a view to warding off, if possible, the next paroxysm. Aside from the discomfort, there are several important reasons why the disease should be promptly checked: (1) The pernicious form is nearly always preceded by one or two attacks of the intermittent variety, and if promptly treated might be aborted; (2) each paroxysm is accompanied by a disintegration of the corpuscles of the blood, causing progressive anemia, and is injurious by the visceral engorgement which also accompanies it; (3) while individual attacks usually yield promptly, there is a great proneness to relapses, and this increases the longer an attack is allowed to run on.

It is usual to begin the treatment with a cholagogue, such as calomel in four quarter-grain doses a half hour apart, followed by a saline. The idea is to restore the function of the liver, deranged by the malarial poison. The catharsis is also supposed to aid in the absorption of the quinine which is to follow. The efficacy of this preparatory treatment is disputed, however, by such eminent and careful observers as Osler and Austin Flint. With the experience of a long series of researches, Flint claims that the use of cathartics not only is of no benefit, but that it actually antagonizes the interruption of the paroxysms. Where constipation exists, however, mild laxatives are indicated.

The quinine may be given either in a single large dose, or in smaller doses, as five grains, repeated several times a day, and should be kept up until the paroxysms are interrupted. After this the patient should be fortified against the "septenary periods" by giving the quinine on the sixth, thirteenth and twentieth days, thus accomplishing a sort of "fractional sterilization" of the blood. If enlarged spleen and anemia persist, as is especially true in long-continued cases, ergot is of benefit, together with tonic measures—iron, arsenic, strychnine, etc.—as follows:

℞ Reduced iron,  
Quinine sulphate, of each 48 grains;  
Arsenous acid, 1 grain;  
Oil black pepper, 15 drops.

Mix. Make pills No. 24. Take one pill after meals for a month or so.

The regular distinct paroxysms may give place to simply a daily fluctuation of heat. This, indicating that the system is still infected, would call for continued active treatment.

As it takes from three to five hours for a dose of quinine by the mouth to attain its full effect, it should be given at least this length of time before the next paroxysm is expected. Otherwise it is best to wait for the next remission.

*Remittent Fever.*—Here the quinine is to be pushed in the remission. The organisms seem to be in a condition of lowered vitality at this time, and the treatment has a more pronounced effect on them; indeed, in some cases it is the only period in which remedies seem to have any effect at all. If the remission is not distinct the thermometer may be used to identify it. The stomach is often quite irritable, preventing treatment *per os*. Here one of the other avenues must be used. If there is bilious vomiting, it should be encouraged by warm water until the stomach is emptied, and then the stomach quieted by abstinence from food and the administration of lime-water, and if necessary opium. The strength must be maintained, giving food and stimulants per enema if necessary. The same septenary precautions and after-treatment by tonics would apply here as in the intermittent form; also the use of sponging, etc., to combat high temperature, and other palliative measures.

In many cases Warburg's tincture seems to have an admirable effect, possibly due in some degree to the combination of aromatics with the quinine. It is especially recommended by Maclean, who declares it to be superior to quinine alone in remittent and pernicious fever; especially so in those varieties characterized by excessive congestion. It should be given in the dose of a half-ounce, undiluted; repeated once, if necessary, after two or three hours.

*Pernicious malaria* differs from the other varieties only in the extreme severity of the symptoms, the great prostration, and the imminent danger of a fatal outcome. These call for prompt and most energetic treatment. Cinchonism must be produced as rapidly as possible, and as the variations in temperature are exceedingly irregular, quinine must be

used at once and pushed at every opportunity till its effect is obtained, large doses being necessary. The stomach can rarely be used, and it is here especially that the method by hypodermic injection and Baccelli's method by intravenous injection serve their most important purpose. The great depression is combated by strychnine and digitalis. In the algid stage reaction can be invited by the use of morphine hypodermically, the application of heat, or brisk rubbing with ice.

The heart and nutrition demand attention. For the former nothing is better than strychnine hypodermically *pro re nata*, in dose of one-thirtieth of a grain. The patient must be sustained chiefly by enemata containing whiskey, peptonized foods, broths, etc.

*Malarial cachexia* is the result upon the system of chronic malarial intoxication, which may manifest itself upon various organs. The line of treatment should be directed toward the relief of these various complicating troubles, together with the persistent use of quinine, iron, and arsenic in various forms.

Change of residence on the part of the patient to some locality where he will not be constantly subjected to reinfection is a *sine qua non* of successful treatment.

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#### THE POST-OPERATIVE TREATMENT OF SURGICAL CASES.

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Hospital.

(Continued from page 731.)

**Feeding.**—The value of appropriate dieting in bringing about a rapid recovery cannot be overestimated. All surgical injuries, whether of soft structure or of bone, heal more rapidly the better the condition of the blood, and it is therefore indicated that an abundant nourishing diet, properly selected with regard to its ready digestibility, should be given after operations of all grades of severity. It is accordingly highly essential that the attendant should be informed in the proper administration of food, how and when nourishment should be given, as well as have some knowledge of the elementary composition of foods, so that he may have a definite idea of the amount of nourishment required and the food value represented in different aliments, and that he may give them in a manner which will stimulate nutrition in the most advantageous way for the early healing of the wound.

The vague directions of some physicians in ordering a "restricted diet," "soft diet," "house diet," etc., have their counterpart in the lengthy dietary of others who in their zeal to promote a rapid healing by the administration of a liberal and superfluous quantity of food render it possible to overcharge the blood with products of nutrition, and defeat the objects in view by burdening the organs of assimilation. In no part of the after-treatment is a proper knowledge and detailed direction more important for the welfare of the patient, and yet so little appreciated or properly carried out. Necessarily a definite knowledge in this direction can only come from a wide bedside experience and the close observation of individual cases, noting the caprices of the patient's appetite, marking the condition of his tongue and the digestive apparatus, seeing that the ingesta are properly assimilated by frequent examination of the urine and other discharges, and that the needs of the organism are properly supplied. In this brief paper we can only enter into a few of the practical points in feeding that are most essential, and offer a few suggestions which will act as a guide to the physician who has charge of the case.

If the operation was a *mild* one attended with but little shock and loss of blood, but still of sufficient severity and of such a nature as to confine the patient to bed for some days, as in tendon elongation for clubfoot or the opening of a psoas abscess, the diet need only be restricted until the effects of the anesthesia have passed away and the stomach has fully regained its normal condition, which usually occurs in the course of twenty-four hours. The nausea and vomiting will usually have subsided in these cases four or five hours after the operation, and the patient is given several ounces of hot tea or coffee, without sweetening, sipping it from a spoon. If this is retained, he is given two hours later a small glassful of iced milk and Vichy water, or a cup of cocoa, or half an ounce of liquid peptonoids, which is repeated in the course of several hours; or beef tea or beef jelly may be substituted for these. This may be continued at intervals of several hours throughout the night if the patient be wakeful, together with bits of cracked ice or occasional swallows of cold water. If beef tea is given special care should be taken in its preparation so that it will be acceptable to the patient. It is such a valuable and nutritious food that as an article of the sick-room dietary it cannot readily be dispensed

with and is often indicated and very generally used, but the majority of the preparations which the writer has seen and tasted would turn even a healthy stomach. Preparation as follows will yield a savory beef tea: Cut the fat from a pound of lean and juicy beef (preferably from the rump or round), and mince the meat. Put this into a skillet, pour on cold water until the meat is covered, and allow it to soak two hours; then let it simmer on the stove for an hour longer, boil quickly, and strain. The thin layer of fat floating on the top, which makes the food so unpalatable to patients and likewise hard to digest, is removed by dipping pieces of blotting-paper over the surface, until all the grease is absorbed. By seasoning the fluid with salt and pepper to the patient's liking it will usually be taken without trouble and indeed with much relish. None of these liquid foods are given during the night, however, if the patient sleeps. On the following morning he may partake of a light breakfast of soft cooked eggs, toast, and tea; and later, in the absence of fever and gastro-intestinal disturbance, he may resume his accustomed diet.

On the other hand, if the operation has been a *severe* one the dietetic management will be a matter of more serious import. The attending shock, the intractable nausea, the great prostration and a failing heart make the proper administration of stimulating and nourishing food a matter of much concern, and one on which more than on anything else hinges the chances of the ultimate outcome. Proper dieting will then be a most important consideration. This fact has always been recognized by surgeons who have been eminently successful in obtaining satisfactory results in hazardous cases where other operators, less appreciative of the value of such knowledge, have failed. The elder Gross, realizing the benefits extended to his patients from the administration of a suitable dietary, was wont to remark that were he ill he would want a physician "who knew more about food and less about drugs," and there can be no doubt of the suggestive truth of this remark, and the influence which suitable food and nourishment will have in bringing about a quick recovery after serious operations.

For the sake of simplifying the dietetic management in serious cases, we will divide these into two classes, viz.: those in which abdominal section has been performed and the gastro-intestinal tract has been disturbed, as in intestinal anastomosis, excision of the

appendix, and the removal of abdominal growths; and those in which operations of magnitude have been performed in other regions, as in breast extirpation, trephining the skull, and major amputations.

In both these classes of cases the anesthesia will have been continued over a considerable time, and the shock, depression, nausea and vomiting are usually so severe and prolonged that while the administration of nourishment is urgently demanded by the system, it must be carried out carefully and cautiously so as not to aggravate the untoward symptoms.

In the latter class of cases, in which the peritoneal cavity has *not* been invaded, the gastric irritability usually subsides in the course of six or eight hours, and the patient is then allowed to sip from a spoon two ounces of hot tea, without milk or sugar. If this remains on the stomach without causing any further disturbance, he is given in the same manner several ounces of chicken broth or beef broth every two hours until he falls asleep, or throughout the night if he is wakeful. At times, however, the vomiting will be prolonged, especially in susceptible patients, and will not readily yield to the measures instituted to control it. This will further depress the greatly weakened patient and will make the demand for nourishment still more urgent, but as feeding by mouth would only aggravate the gastric irritability and favor egestion, the stomach is given entire physiological rest and the rectum is utilized for feeding purposes. Sufficient aliment will be absorbed from the mucous membrane of the rectum and sigmoid flexure, after the injection of a properly prepared nutrient enema, to supply nourishment to the tissues and sustain the strength until the vomiting has ceased, even though this continue over several days, and in intractable nausea is the only safe method of alimentation. In employing this method the attendant must be assured that the rectum is cleansed of all mucus and feces. If a copious enema of soap and warm water was given just prior to the operation in anticipation of later complications, the rectum will be empty and rectal feeding may be carried out at once; but if such is not the case the lower bowel must be flushed with a soap and water injection before the food enema is given. This preliminary douching will not only cleanse the mucous surface but will stimulate the circulation in the parts and favor absorption. If much mucus comes away with the enema and there is much rectal irritation it is well to add boric acid

to the injection. The nutrient enema must be given immediately after the rectum is cleansed. In preparing this only such materials should be selected as will be rapidly and completely absorbed. Slowly absorbable foods act as foreign bodies and will soon be expelled. Starches and fats are not taken up at all, so cannot be employed. Food-stuffs that are predigested, composed principally of albuminous substances, are best adapted for this use, and milk, eggs, and meat juice, all properly pancreatized, form the basis of the many formulæ which are used by surgeons in rectal alimentation. In the Jefferson Hospital coffee is usually combined with the pancreatized milk, two ounces of each, with the addition of an ounce of whiskey. Professor Keen prefers the simpler formula consisting of beef extract and whiskey, of each a half ounce, and pancreatized milk, three and a half ounces. A method which is somewhat more complicated but which has proved eminently satisfactory in the writer's hands is as follows: To three ounces of fresh milk is added an ounce of cold water in a clean vessel, and the pancreatizing powder, consisting of pancreatic extract 0.5 grain and sodium bicarbonate 15 grains, is added while stirring, together with the whites of two eggs. This is placed in warm water, at a temperature of 95° F., for half an hour. A slightly bitter taste will signify that fermentation has proceeded far enough; a little salt is added to favor absorption, also a half ounce of good whiskey, and the whole is ready for injection. The water is added to dilute the milk, as milk in too concentrated a form will act as a foreign body, and strong whiskey is *not permissible*, as it coagulates the casein in the milk. The yolks of the eggs are discarded as they are commingled with so much fat, which is absorbed only by the villi in the small intestine.

Attention to the minutest details in administering the enema will be necessary to get the full benefit of the injection. The patient is turned on his left side if his condition permits, and his hips are raised on a pillow. A flexible rubber (Nélaton) catheter is lubricated with vaselin and is passed into the bowel (remembering that the direction of the lower inch points toward the umbilicus), for a distance of eight or ten inches, which will bring the eye of the catheter into the sigmoid flexure. In children a No. 12 caliber will be sufficiently large, but in adults a No. 20 should be used. Special care must be exercised on inserting the tube if the

patient be subject to hemorrhoids, so that undue irritation is not caused. The injection is preferably given by means of an ordinary large glass or hard rubber syringe—the amount injected can be seen in the former, but the latter is less fragile. The syringe should hold about two ounces and should be thoroughly clean. The patient is told not to strain as the fluid is slowly forced up into the bowel by successive syringefuls until the whole enema has been injected. The advantages of placing the enema high up in the bowel are that it is retained better, it is brought in contact with a more extensive mucous membrane surface, and a physiological reason exists which was pointed out by Thompson: The superior hemorrhoidal veins form the commencement of the inferior mesenteric vein, which also receives the blood from the sigmoid flexure, while the vessels in the lower third of the rectum terminate in the internal iliac vein. Consequently what is absorbed from the lower third of the rectum passes into the internal iliac and vena cava without going to the liver, while that which is absorbed higher up is carried through the branches of the portal vein directly to the liver, and it is here that the final digestion and assimilation of the proteids take place. On withdrawing the tube, which is done rather quickly, a compress of gauze or cotton, which is in readiness, is placed between the buttocks and pressure exerted either with the hands or a T-binder for twenty minutes, the patient's position remaining undisturbed during this time, after which he may be arranged more comfortably.

These enemata are repeated at intervals of six hours, until the stomach is finally settled and again in condition to receive food, which may be on the second, or possibly on the third or fourth, day. As soon as the nausea is controlled, stomach feeding is resumed with sips of hot tea.

Rectal alimentation is often indicated after extensive operations on the larynx, jaws, and tongue, but it can usually be replaced at the end of a day or two by feeding the patient by means of a soft catheter passed through the nose, providing reasons exist which make it unwise to allow feeding by mouth. The catheter is soaked in warm water, lubricated with vaselin, and passed gently through the lower nasal fossa down into the esophagus. Milk, beef tea, broths, and punches are used as foods in these cases, and before they are poured into the funnel attached to the free end of the catheter or accessory tube, it

must be made certain that the patient is breathing freely and that the end of the catheter has not entered the trachea. This method is repeated every four hours until the patient may again take nourishment by mouth.

On the *second* day, if there has been no necessity for nasal or rectal feeding, a liquid diet of milk and broths is maintained, administered by mouth in small quantities every two hours, in order to coax back to a normal condition the depressed and enfeebled powers of digestion. If there is very marked lack of nerve energy it is well to begin in the early hours of the second day with several ounces of black coffee, if the patient's stomach will bear it, and particularly if he has not had the invigorating influence of a night's sleep. This should be given hot and sweetened to his liking, and should be taken from a cup through a glass tube bent at a right angle near the middle, so that the nurse can see how much the patient is swallowing, his head being slightly raised by the nurse placing her hand beneath the pillow and raising both together. If the patient is extremely weak the cup is raised so that the fluid flows through the tube into his mouth without effort. Owing to the enfeebled digestive functions, milk will be the staple article of diet on the second day, but many patients will assert, from previous experience, that they cannot endure the taste of milk, and that the peptonized form, which would throw the least amount of work on the stomach, is peculiarly intolerable to them. The various modifications, such as Pasteurized milk or modified milk, which disguise the taste but retain the nourishing qualities, may then be used. Albuminized milk, largely used by Professor Keen, and usually very acceptable to the patients, is made by putting the whites of three eggs and three ounces of lime-water into a corked bottle, which is shaken for five minutes; a half pint of milk is added, the bottle is again shaken five minutes, and sugar and sherry wine are added to suit the taste, except the patient be a child, when the wine is omitted unless especially indicated. Kumiss (milk prepared by simultaneous lactic acid and alcoholic fermentation) is also usually an acceptable form for administration, and has the advantage of helping to allay the tendency to gastric irritability. Even raw milk, with a little perseverance on the part of the nurse, and making use of the many methods of altering its taste, will be effectually retained by starting with small doses, and rapidly increasing these until

a sufficient quantity is ingested. In disguising its taste, coffee, caramel or ginger are useful, or chocolate, cocoa or common salt may be tried. If alcohol is indicated it may be combined advantageously in the form of weak punches, with a dash of nutmeg, or as an egg-nog, with whiskey, sherry, or rum. None of these added agents affect the nutritive value of the milk in any way.

Milk in any of these forms is given in small quantities at first, and frequently repeated—several ounces every two hours—and the patient is fed slowly so that no large curds will form in the stomach. When he is convinced of his ability to retain it, the quantity may be increased according to the stomach's tolerance. The milk on hand must be kept cold and covered, and a simple refrigerator for the sick-room may be improvised by wrapping a large piece of ice in a piece of flannel and placing it in a pan or pail. Wine whey and junket (milk curdled with rennet) will also be found agreeable to the patient, as well as chicken, veal, or mutton broth, made like beef tea, and administered in like manner and quantity. After each feeding the patient's mouth is rinsed with pure water or borax water to prevent the fermentation of that which lingers between the teeth and which might interfere with digestion.

On the *third* day a more substantial diet may be inaugurated by the addition of farinaceous foods and the light meats of fowl. A return to this more substantial food is often marked by a flagging appetite and an indisposition of the patient to partake of anything except that which is brought to him at regular intervals and in fluid form. The still marked depression, however, demands the stimulation and nourishment from heavier food, and it is then that the value of precise instruction from the surgeon, and of tact on the part of the nurse, particularly assert themselves.

Vaguely indicating that "soft diet" should now be given generally means the administration of raw milk and eggs in indefinite quantity, and vegetables and puddings and breads in a promiscuous way that may not agree with the patient and still more sicken and depress him. Hence it will be a matter of great importance, not only to determine just what articles of food are to be administered, but that all the niceties in serving them be employed, in order to stimulate the patient's appetite. Small quantities should be given at a time at appointed intervals, and in courses, even though these be very limited,

instead of placing everything before him at once, and should be served on attractive china and with spotless linen, using different receptacles for food than those used for medicines to avoid the association of ideas. The food must not in any way show signs of defective cooking, and must be given properly minced and diluted, neither in too concentrated a form nor too weak, as bulky and highly concentrated foods require too much effort to masticate and to digest, and diluting the milk and gruels too much, or making the beef tea and broths too weak, tires the patient in swallowing, and his head sinks on the pillow before sufficient nourishment is obtained. The nurse will also allow a proper interval to elapse after removing the vessels employed for the discharges before offering nourishment, and will make use of the many dainty ideas of the sick-room regimen that will suggest themselves to her, and which will contribute much to the patient's appetite.

The farinaceous foods which will be found most serviceable at this stage and which will usually be acceptable to patients are: arrow-root boiled and flavored with lemon peel, hot oatmeal gruel from which the hulls have been removed, corn-starch mixed with milk, and farina made up with milk and eggs. These may be served with the three daily meals which are again introduced, but are preferably used with the morning and evening feedings, the heavier diet of meat and dry breads being reserved for the midday meal. Cornmeal gruel and flour, and mashed rice and cream, both served hot, will also be of service, but are slightly harder to digest and not usually relished as much by fastidious patients. With these may be served tea or coffee, and toast, either dry or boiled with milk, and soft cooked eggs, shirred, poached, or boiled. The midday meal will consist principally of nitrogenous food, clam juice heated, minced light meat of a tender chicken, a boned squab or reedbird, or the soft parts of oysters in season, with Graham bread and milk. Punches and broths are given between times and before the retiring hour, and permissible liquids during the night as desired. This dietary will be repeated on the following day, with the addition of a baked sweet apple or baked banana, or stewed prunes or pears, and a baked potato with the ends cut off to allow the water and steam to escape. On the *fifth* day the red meats of beef and mutton may be substituted for the fowl and squab, provided there is no marked rise in temperature or visceral congestion; and from

this day on the diet need no longer be restricted.

Should inflammation set in, with a decided pyrexia, the foregoing diet will be modified to some extent by withholding the red meats and supporting the patient's strength with the articles of food mentioned that are easily assimilated, and that can be given in ample quantity. Local inflammation with constitutional symptoms means increased tissue waste and increased expenditure of force in the evolution of heat, which must be replenished by an adequate amount of nutritious food. But as in inflammatory conditions the appetite and digestive power are likewise lessened, it would be injudicious to overtax these functions by the administration of the heavier foods. The demand will be more in the line of the lighter and easily digestible materials, with a plentiful supply of demulcent drinks, particularly in the form of punches and egg-nogs. Should the inflammatory process go on to a chronic stage and be attended with the formation of pus, the diet need no longer be restricted, and a regimen consisting largely of fresh green vegetables and fresh fruits is indicated, as these will be serviceable for their antiscorbutic and laxative properties. Fats, which are likewise indicated in suppurative processes when administration by mouth is not admissible in the form of olive and cod-liver oil, can be supplied by daily inunctions of cacao butter or goose grease.

If the operation was an *abdominal section*, for appendicitis, intestinal anastomosis, or the removal of morbid growths, the dietetic management during the first few days will be markedly different from that set forth above. Invasion of the peritoneal cavity, particularly if attended with much manipulation of the viscera, for the time being interferes with the normal peristaltic action of the bowels and partially paralyzes their functions, hence the food that is given must be of a very easily digestible character, so that the dangers of indigestion, malfermentation and flatulent distention will be avoided.

From close observation in these cases it has been found that milk, and the articles of diet in which it is incorporated, is the chief offending factor in causing gaseous distention, and its use during the earlier days after an abdominal section has now been entirely abandoned. In its place have been substituted foods that are less liable to cause these untoward symptoms, as tea and coffee, liquid peptonoids or nutrient wine (which consists

of a high percentage of beef peptones dissolved in good wine), broths, beef extracts, and water ices.

After the operation, if there is marked depression and nausea demanding stimulation and nourishment, the patient is given an enema of coffee two ounces, whiskey one ounce, and beef extract a half ounce, which is repeated every four hours until the stomach is quieted and able to receive food. As in the case of stomach feeding, milk is proscribed in the enemata. The demand for these nutrient enemata usually does not extend over the first twenty-four hours, and they can generally be replaced on the morning of the second day by the regular methods of feeding. If the enemata are given after operations in which a Mikulicz drain or a copious vaginal tamponade has been used, it must be borne in mind that the pressure from these may seriously interfere with absorption. The nausea being but slight, or responding to treatment in the course of several hours after operation, the patient is given sips of hot water in drachm doses at intervals of half an hour until every vestige of gastric irritation has disappeared. Two ounces of hot tea or coffee, without sweetening, is then administered slowly, which quantity is repeated every two hours; or in lieu of this may be given two drachms of nutrient wine or liquid peptonoids, properly diluted. Small quantities of dry champagne will often be grateful as well as nourishing. These may be alternated and continued at two-hour intervals during the night if the patient be wakeful or extremely weak. On the following morning the day is begun with a small cupful of coffee or tea, and the diet from thenceforth may be set down in a general way as follows:

*Second day.*—7 A.M., small cupful of coffee or tea without sweetening; 8 A.M., small cupful of beef broth or chicken broth; 10 A.M., nutrient wine or liquid peptonoids; 12 M., meat juice, half an ounce; 2 P.M., nutrient wine or liquid peptonoids; 4 P.M., beef extract or beef broth; 6 P.M., coffee or tea, and meat juice; 8 P.M., nutrient wine or peptonoids; 10 P.M., chicken broth.

*Third day.*—7 A.M., coffee or tea, poached egg on toast; 10 A.M., chicken or mutton broth, nutrient wine; 12 M., dry toast, broths, peptonoids, coffee or tea; 2 P.M., gelatin, kumiss; 4 P.M., nutrient wine, water ices; 6 P.M., dry toast, shirred egg, tea or coffee; 9 P.M., chicken broth or beef broth.

*Fourth and fifth days.*—7 A.M., coffee or tea,

soft boiled, shirred, or poached egg, oatmeal gruel (boiled twice), toast; 10 A.M., broths, nutrient wine or peptonoids; 12 M., light meats of fowl, dry toast or Graham bread, calf's-foot jelly, rice, tea or coffee; 2 P.M., nutrient wine or peptonoids; 4 P.M., kumiss, gelatin, broths; 6 P.M., soft parts of oysters, cream crackers, nutrient wine, gelatin or calf's-foot jelly; 9 P.M., chicken or beef broth.

*Sixth and seventh days.*—7 A.M., soft cooked eggs, oatmeal gruel, toast, Graham bread, coffee, tea or cocoa; 10 A.M., cup of mulled wine, broths, nutrient wine; 12 M., small piece of beefsteak or chop, baked potato, thin slice of wheaten or Graham bread, tea or coffee; 4 P.M., chicken broth with rice, corn-starch, or farina; 6 P.M., soft parts of raw oysters, toasted Graham bread, wine jelly, tea; 9 P.M., broths and nutrient wine.

After the first week, in the absence of sepsis, fever, and gastro-intestinal disturbances, there is no harm in allowing the patient the full diet of animal and vegetable foods to which he is normally accustomed.

After gastrostomy, nourishment is administered through a rubber tube in the fistulous tract, leading into the stomach, the tube being either fixed in the opening, as in Witzel's method, or removable, as in the more recent plan devised by E. Senn. In the latter method the patient's strength will have been maintained by rectal alimentation for forty-eight or seventy-two hours prior to making the opening in the stomach wall, which usually comprises a second stage of the operation. The food that is introduced through the tube into the stomach will consist of those articles included in the dietary of the first and second days after abdominal sections; with the later addition of milk in various forms when the viscus has become firmly adherent to the abdominal wound and no harm can result from malfermentation. The liquids in ample quantity are poured into a funnel attached to the free end of the tube every three hours, and while the feeding is in progress the patient is asked to masticate pieces of solid food to satisfy in part the sensation of hunger. Feeding by this method will sustain and prolong life many days, and in a case operated upon by Professor Keen during the writer's term of service as interne in Jefferson Hospital the patient gained weight and lived in comparative comfort for many months.

(To be continued.)

# The Therapeutic Gazette

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## Leading Articles.

### TREPHINING AS A MEANS OF RELIEF IN CASES OF RESPIRATORY DIFFICULTY FOLLOWING CEREBRAL LESIONS.

One of the most hopeless conditions which the general practitioner is called upon to face is that in which the subject of an apoplectic seizure begins to suffer from greater and greater respiratory difficulty until it is evident that if something is not soon done for his relief death must speedily ensue. By apoplexy we mean that condition in which there has been a rupture of a blood-vessel somewhere in the skull cavity. As a rule the physician finding himself in such a plight can do little else than stand by and wait till death ensues, although if the patient be very plethoric it is certainly a fact that free bleeding from a vein in the arm will often give great relief and save, or at least prolong, life. Similar symptoms also arise from other cerebral injuries and lesions. Various measures have been suggested for the treatment of this state, many of them depending upon an erroneous idea of its cause, and others so radical in character as to be startling in their very suggestion. Perhaps one of the most

radical of these was that of Victor Horsley, namely, compression or even ligation of the carotid artery of the side of the brain in which the "artery of cerebral hemorrhage" had ruptured. The various changes in posture which have been suggested are none of them adequate to meet the condition, except in so far as they equalize the circulation and prevent cerebral congestion, or stasis, by preventing any constriction of the neck by the collar or by faulty position of the head. If the hemorrhage has taken place some hours before and there is reason to believe that it has ceased, and yet the respiration seems about to fail, great benefit may accrue from resorting to Laborde's rhythmic traction of the tongue or even the ordinary methods of artificial respiration. These and other directions will be familiar to those subscribers of the GAZETTE who have read the valuable suggestions of Byrom Bramwell, which were published in the November issue for this year in the department devoted to Progress.

The chief object of this editorial is, however, the calling of attention to the recently made suggestion that in a large proportion of cases the respiratory death from apoplexy results from pressure directly or indirectly exercised upon the most sensitive of all nervous centers, namely, that governing respiration. That failure of respiration is the most common cause of death in many injuries to the cranial contents is proved by experience, for the heart as a rule continues beating for some minutes after breathing ceases. This fact is particularly emphasized by Dr. J. Lacey Firth in the *Bristol Medico-Chirurgical Review*, where in the course of an article he quotes a case of meningeal hemorrhage, recorded by Hutchinson, in which the pulse continued five minutes after the respiration ceased; and in another case of Fagge's in which the pressure of a cerebral abscess caused arrest of breathing with a continuance of the pulse-beat for ten minutes while artificial respiration was maintained. In another case the pulse lasted for thirty-five minutes. To quote more directly from Smith's article, he proceeds to state that Mr. Horsley mentions four cases he has met with, all of them being cases of tumor of the brain. In three of these the respiration ceased suddenly as the operation of trephining was being proceeded with, and in these the operation was quickly completed and tension relieved, when the power to breathe naturally returned. Mr. Horsley writes: "Cases of cerebral hemor-



rhage, of cerebral tumor, and of depressed fracture, as well as cases of sudden and violent concussion, especially when applied in the occipital region, die from failure of respiration, and not, as is so often surmized, from failure of the heart." Mr. Horsley also maintains that in those cases in which persons have been described as suddenly falling down dead, in consequence of violent blows on the head, *e.g.*, from a fist or cricket ball, or from an explosion, the fatal ending has resulted from respiratory paralysis, and might in some of them have been avoided by performing artificial respiration.

Macewen refers to two cases of respiratory paralysis. In one of these the heart continued to beat regularly for twenty-four hours after natural respiration had ceased. The source of pressure was a cerebral abscess. Mr. Jalland, of York, relates a case in which the breathing ceased when trephining was being proceeded with, and was not restored until pus was evacuated from a cerebral abscess. Another abscess case, where the heart continued beating for six hours, is reported from the Liverpool Royal Infirmary. Drs. Sawkins and Vallack, of Sydney, give notes of six cases of respiratory paralysis, all ultimately fatal. Two of their cases were of basal meningitis, with internal hydrocephalus; the other four respectively of intraventricular hemorrhage, cerebral hydatids, cerebellar tumor, and malignant tumor of the base of the skull; the length of time during which the heart continued to beat varied from ten minutes to two hours.

Firth finally records a case of his own in which he resorted to trephining for the relief of the pressure, which, though indirectly exercised on the respiratory center, seemed to be about to cause immediate death.

This patient was a male child, two years of age, and was admitted to the hospital at 1 P.M., soon after a fall upon the head from a first-floor window. There was no scalp wound, but each parietal and temporal region was greatly swollen. The symmetrical swellings gave the head a very curious appearance. They were soft and boggy to palpation. The patient was very incompletely conscious and very pallid. He lay for the most part still and quiet, but movements of each limb were made in response to cutaneous irritation. The pupils were equal and rather wide. They acted sluggishly to light. Vomiting occurred two or three times in the first two hours after admission. There was no hemorrhage from the ears. The pulse was 120; the respi-

ration normal. Two hours later the patient responded less to stimuli. The left pupil was perhaps a shade larger than the right. The right arm and leg were moved fairly briskly on stimulation, but the left hardly at all. Soon after 6 P.M.—*i.e.*, rather over five hours after admission—respiration suddenly ceased, and cyanosis became marked. Artificial respiration was begun at once, as the heart was beating regularly and yielding a fair radial pulse. He had not an opportunity of seeing the patient between three and half-past nine. At ten o'clock—*i.e.*, three and a half hours after the cessation of respiration—he removed, by trephining, two discs of bone from the right side of the skull. The first disc was over the anterior branch of the middle meningeal artery. The dura here seemed very tense, and was incised, but the brain did not bulge out. He attributed this to the small size of the aperture and the viscosity of the brain. The posterior disc was divided vertically by a fissured fracture of the skull. Through the uppermost exposed part of the fissured fracture a flake or two of brain substance had exuded. No removable source of pressure was discovered through either aperture.

The heart at the end of the operation was acting as strongly as at the beginning. Artificial respiration was kept up as well as possible during the operation, and for two hours longer. The artificial respiration was continued until the heart's action ceased, which was six hours and ten minutes after the onset of the paralysis of the respiratory center. During the last hours of life transient systolic cardiac bruits were frequently heard.

The reason he trephined on the right side rather than on the left was that in his earlier observations there was a much weaker response of the left limbs to stimuli than of the right.

The post-mortem examination showed that if the other side had been chosen the pressure might have been much more effectually relieved.

We have already called attention in a complimentary manner, in an article upon Chloroform in the February issue of the GAZETTE for this year, to a valuable monograph on the Physiology and Pathology of the Cerebral Circulation by Mr. Leonard Hill, and from this and other researches it becomes evident that free trephining is to be practised in a certain number of seemingly hopeless cases of apoplexy or other cause of increased intracranial pressure. When the damage to

the cranial contents is so great as to necessarily result in death no good can come of the operation and no harm. In other instances it may save life, and it should always be tried in cases in which respiration ceases and the practise of artificial respiration fails to give relief. During the performance of the operation, and after it until all hope is lost, artificial respiration by Sylvester's method should be constantly practised.

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*THE RELATIVE VALUE OF THE TABLET  
TRITURATE IN ITS VARIOUS  
FORMS AND IN COMPAR-  
ISON WITH LIQUID  
PREPARATIONS.*

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The introduction of the triturate for the administration of medicines was a distinct advance in pharmacy because it better prepared the medicament by minute subdivision for solution and absorption. It was also a gain in therapeutics for these reasons, but even those advantages did not render them very popular with the profession. It was not until the discovery was made that triturates could be readily formed into tablets that they became popular preparations, since in this form physicians could readily carry and prescribe remedies which hitherto had been difficult to handle and to measure in an accurate manner at the bedside of the patient. As a result we now have before us, or rather behind us, the accumulated evidence of the value of this manner of administering remedies, and it is important to consider whether the physician and his patient gain as much when the latter receives drugs in tablet triturate form as he does when the older method of dispensing tinctures or fluid extracts was resorted to. Our attention has often been arrested by this question, and has been recently called to it once again by a letter from a subscriber to the GAZETTE, in which he asks whether tablet triturates, compressed or uncompressed, are reliable, and if they maintain their medicinal properties. The reply to this question seems to rest upon the character of the drug with which the triturate is made. If, as in the case of *cimicifuga*, which is supposed to depend upon a volatile substance for its usefulness, the drug parts with its chief virtue on prolonged exposure, it goes without saying that the triturate is not to be used, and that a well prepared and well preserved fluid extract is preferable. On the

other hand the permanent drugs, such as many of the mineral substances used in medicine, can be kept indefinitely in tablet form and yield as good results as ever, as can also many of the medicaments derived from the vegetable kingdom.

The very extraordinary demand for these preparations would seem to indicate that they possess a value far above that due to their mere convenience in dispensing, and seems to answer the question of our correspondent in the affirmative. He also asks for a comparison between the reliability of the average tablet and fluid extract and tincture. The latter preparations certainly deteriorate by long keeping, particularly that most valuable class of products known as fluid extracts, and it may be laid down as a rule, we think, that if the physician will renew the contents of his medicine case containing tablet triturates as often, or half as often, as he usually renews the contents of the bottles holding fluid extracts he need have no cause to fear that his therapeutic results will suffer by the use of the tablet. There are of course greater opportunities for well concealed dishonesty in the preparation of tablets than of liquid preparations, and each tablet if carelessly made may not contain an identical quantity of the drug, but this is to be avoided by the patronage of a reliable manufacturer. Most medicaments had better be prescribed in the ordinary tablet form than in the compressed form, which cannot be as soluble. Further than this, many of the drugs which are naturally slow of solution in the alimentary tract are the very ones which require enormous pressure in the machines in order to make their individual particles cohere, and thereby are practically like bullets when swallowed, often passing through the bowel with only their surface dissolved.

Our correspondent questions the usefulness of tablets containing more than one ingredient, and we agree with him, for it is better to give several tablets representing several single drugs, if we seek a combined effect, than one tablet in which the various quantities may not be those desired or which may contain an ingredient entirely useless for the case in hand.

In the case of ergot and other drugs whose active principles doubtfully represent the fluid extract, it is probably best to use the liquid form, but in the case of the greater number of drugs the tablet, if well made, may be relied upon.

*THE RESULTS OF NEPHRORRHAPHY.*

The fixation of a movable kidney in its proper position by suture has long been recognized as a comparatively safe operation. A statistical study of reported cases, particularly that published by Guyon, seems to show conclusively that the mortality is low, that the technique is comparatively easy, that the direct and indirect results are excellent. The direct results are those connected with the relief of kidney pain and congestion and particularly of attacks of kidney colic due to flexion or twist of the ureter. The remote results are those relating to the gastro-intestinal canal, since it has been shown beyond doubt that a movable kidney may so drag upon the duodenum or the colon, or so press upon other viscera, that great suffering and ultimate irreparable pathological changes may be produced. Guyon's statistics show that there is a comparatively large percentage of recurrences, but that this percentage is less when the operation is so conducted that the kidney capsule is stripped and torn up and the sutures are so applied that the kidney substance is brought in direct apposition with the tissues lying behind it.

There has been lacking in most of the published tables a careful analysis of the cases. It is notorious that the tendency of the profession is to rush into print only with successful cases. Hence conclusions derived from a study of the collection of such published cases are necessarily not to be depended upon.

Wolff reviews in the *Deutsche Zeitschrift für Chirurgie*, 46 bd., 1897, a report on twenty cases of wandering kidney operated on by Rose in the last thirteen years. The method of operation was in general that commonly employed; the lumbar incision was made, extending from above the lower two ribs, downward to the crest of the ilium, and exposing Pettit's triangle. The latissimus dorsi muscle was drawn aside or cut through and the lateral border of the sacro-lumbar muscles was exposed and drawn inward if it was broad. The dissection was then carried down to the quadratus lumborum, the oblique insertion of which into the crest of the ilium enables it to be recognized. Pettit's triangle was incised along the border of the quadriceps. The deep wound was as long as the loin of the patient, the upper extremity reaching to the lower border of the twelfth rib, the lower to the crest of the ilium. All

vessels were ligated as cut; with care the lumbar nerve, which runs obliquely across the wound, may be avoided. When the loin is short and the wound small it is sometimes difficult to find the kidney. When it was clearly seen the fatty capsule was torn open with the finger on the convex border, as was also the fibrous capsule. These structures are separated outward and inward. The kidney was then fixed so that its upper pole lay beneath the twelfth rib. This was accomplished by two or three strong catgut threads, which were passed through the kidney substance, including a mass about the size of the finger. The external wound was closed above and below and the middle part was drained. The bandage was changed every day for the first ten days, since some urine leaked out through the needle punctures of the kidney. This change must be made with the patient in the dorsal position, his body being supported by two properly placed bandaging stools. It is important that he should not be turned on his side, since it is always possible that the catgut threads may tear. The patient remains in bed in the dorsal position for five full weeks. The detailed history of the twenty cases follow. In one, because of tubercular disease, the affected kidney was afterward extirpated. In the remaining nineteen nephrorrhaphy was practised twenty-one times. One patient died six days after operation of exhaustion following vomiting, due to great dilatation of the stomach and duodenum. Of the eighteen patients who recovered the wound healed kindly in fifteen; twice there was suppuration causing a long lasting fever. In six cases curetting was necessary before healing took place. In three cases subacute nephritis developed immediately after operation, accompanied by fever; it, however, proved transitory.

Wolff holds that these statistics prove that suture of the kidney is absolutely devoid of danger. Three instances of acute nephritis, one death and several cases of septicemia scarcely seem to prove this contention. As to the lasting result, in two cases the kidney was found fixed in its proper position fourteen years after operation. In the third case the kidney was found to be in its proper position three years after operation. It is noted incidentally that this patient suffered from a slight hernia, requiring the use of a bandage. In one case which required celiotomy three months after the operation because of ileus, the kidney was found properly placed. In

another case fifteen months after operation examination under narcosis showed both kidneys in proper position. In the majority of the other cases the cure was found to be apparently permanent as far as the position of the kidneys was concerned, but the percentage of these cases that required subsequent laparotomy or subsequent examination under anesthesia is astonishing, and inevitably leads to the conclusion that they still continued to suffer from symptoms for the relief of which they sought the surgeon. Moreover, it is worthy of note that even under ether a healthy kidney properly placed cannot be felt in the vast majority of cases, hence the proof as to the kidney maintaining its position would be at best negative. Since it is implied that the kidneys were felt by abdominal palpation it would seem that they were not normally placed at the time of this examination. The influence of scar tissue on the kidney seemed to be *nil*, in so far as urine examinations were conclusive.

Wolff acknowledges that even though the fixation of the kidney can be assured the relief of symptoms is not so certain. The symptoms may be classified under the headings: Pain, gastro-intestinal disturbances, and neurasthenia. The pain and dyspepsia he states can be absolutely relieved by fixation. Hysterical symptoms are, however, more obstinate. He states that the affection is absolutely curative in all simple cases of wandering kidney; and that even when this is associated with hysteria, partly through its psychical effect it powerfully influences this condition for the better, and even complicated cases recover from the kidney pain, and that other forms of derangement are then put in the best condition to be benefited by appropriate therapeutic measures.

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## Reports on Therapeutic Progress

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### *THE COLD-AIR TREATMENT OF TYPHOID FEVER.*

J. MURRAY-GIBBES writes on this topic in the *Australian Medical Gazette* of April 24, 1897. He begins by telling us that the subject matter of his paper comes under the head of artificial aerotherapeutics, or, to use a shorter word, aerotherapy. The success which has attended the treatment of typhoid fever by means of cold baths caused him to consider whether we could not attain a like, or even a more successful, result by means less cumbersome than that of placing the patient in

a succession of cold baths. Having this idea in view he addressed a letter to Mr. W. W. Crawford, of Sydney, an eminent refrigerating engineer, asking whether he could suggest for use in hospitals a better system for lowering the temperature of fever patients than that of a succession of cold baths; the temperature to be reduced from, say, 103° F. to 100° or 101° F.

In reply, Mr. Crawford wrote to the effect that there was nothing to prevent the fever wards in hospitals being fitted up in such manner as to permit of the reduction of temperature of any compartment down to as low as 5° F., or its maintenance at any figure between that and the temperature of the external air by the mere turning of a tap, with the necessary machinery upon the grounds, the cost of which would be within the means of a small hospital to meet. Such have usually a steam boiler, probably in connection with the pump. It would be only needful to lay down a small freezing machine, and connect it with the fever ward—which would have to be insulated—by means of pipes, through which chloride of calcium brine circulates, abstracting both moisture and heat from the room, a tap regulating the flow. The machine is simple, and, in addition to the service indicated, it would make ice for the use of the hospital. It could have attachments by flexible tubing for local applications of cold. In the case of ice only one temperature—viz., 32° F.—can be obtained, but with brine circulation any temperature within the range of the machine, either above or below freezing point, may be reached. Expense puts ether out of court. Drawings, etc., could be forwarded, so as to give the hospital authorities full particulars, for which no professional charge would be made by him.

The advantages of the cold-air treatment of fever are the following:

No handling of the patient is necessary.

He will lie on a tube mattress, and be covered by another, through which tubes will flow a cooling mixture, when required to lower the temperature. There is no doubt that experience will prove that this should be a continuous current, so that the temperature of the body can be prevented from rising above a certain degree.

Experience has taught that the cold treatment of typhoid, to be useful, must be carried out "systematically and with vigor," and that "patients endured this repeated withdrawal of heat without experiencing any bad effects." Riegel proved that placing ice-bags on the

chest and abdomen was less debilitating than cold baths, and the cold-air treatment will be found even less so.

The shock to nervous persons of being placed in a cold bath is avoided.

Attached to the cold water tube will be another, which can convey hot water from a hot water source, so that warm water can at first flow through the tubular mattress, and then, by means of taps, the temperature of the water can be gradually lowered to the required degree. As to the degree of coldness of the freezing mixture, experience will have to prove this. Leube, in 1871, laid patients on large pillows containing a freezing mixture of ice and salt of the temperature of about 14° F.

The method of treatment the writer proposes has great advantages over previous ones, in that we can have any temperature we wish "down to so low as 5° F., and its maintenance at any figure between that and the temperature of the external air by the mere turning of a tap." Besides this we can also, by turning another tap, have hot water to pass through the same tubes when necessary in the treatment of any disease.

We can keep a patient for any length of time surrounded by a cold atmosphere, continually abstracting heat, and so preventing him from rising to a dangerous temperature, and that without disturbing him. Cold water tubes can be placed on any part of body where necessary, as in disease of the chest.

Dr. Barr, in 1891, advocated "prolonged immersion in a tank bath" from six to thirty-one days, and pass all discharges into the bath. The present treatment has advantages over this, while the effect is the same, without any of its obvious disadvantages.

We are told that "constancy of temperature depends upon the power which the organism possesses of so controlling the production or loss, or both, that the normal temperature shall not fluctuate in any direction; that in fever this power of control is so impaired or weakened as to make it inadequate for its purpose, consequently the organism loses its power of keeping itself at a normal temperature. Also that "the true danger in typhoid fever consists in the deleterious influence of a high temperature on the tissues. Nearly fifty per cent. of the deaths are due to the direct influence of an elevated temperature, and in the remainder the same influence has a share in producing the complications, or in bringing about the fatal results; so, if we could guard our pa-

tients against the deleterious influence of excessive animal heat, typhoid fever would no longer belong among the specially dangerous diseases."

Liebermeister wrote: "It is as a matter of course entirely immaterial in what way the abstraction of heat is accomplished, provided that a sufficient amount of caloric is actually withdrawn from the body. On the whole, those means will be found preferable which achieve the desired result with the least inconvenience to the patient."

This being his opinion, an opinion all must concur with, there can be no doubt that the cold air treatment proposed will keep down the high temperature of typhoid, and so greatly lessen the death-rate, and can be carried out without inconveniencing the patient in the least.

As the temperature of typhoid patients is generally higher during the night than during the day, the cold-air treatment can be easier carried out, owing to the nursing staff being less during that time, and assistance not easily to be obtained.

The simple turning of a tap cannot be compared with the trouble entailed on the hospital staff in providing a cold bath. In fact, one nurse could attend to a dozen patients with less trouble than to one under the old treatment.

In other complaints the freezing air treatment must prove invaluable, such as sunstroke, and local congestions and inflammations of the chest, etc. Tube pads of various shapes could be made to fit different parts of the body for conveying hot or cold water.

#### UREA AS A DIURETIC.

KLEMPERER (*Berl. Klin. Wchnschr.*, 1896), in an address on the treatment of hepatic cirrhosis, strongly recommends urea as a diuretic. He advises that recent ascites should be treated by means of diuretics and not by tapping, the former being in his opinion a more efficient and lasting method. He records at length two cases of recent liver cirrhosis with ascites which he treated with urea. In both cases the urine rose rapidly, the ascites disappeared, and the result was as satisfactory as can be in such cases. He has also used urea in the uric acid diathesis, stone in the kidney, and uric acid gravel, following the example of Rosenfield (*Centralbl. für Klin. Med.*, Bonn, 1895, s. 28). It dissolves up uric acid freely, and Klemperer found it superior to piperazin and lysidin in

these cases. He gives it up to 150 and 300 grains daily, and there are never any unpleasant symptoms caused by its use. Klemperer is of opinion that, being as it were the natural diuretic, its action is very much more favorable when the kidneys are intact than when they are diseased.

Returning to the subject (*Deutsche Med. Wchnschr.*, Leipzig, 1896, No. 47) after further experience, he still advises its use in ascites and dropsy when not of renal origin. In forty-two cases of stone in the kidney he has found that it is an excellent solvent for uric acid. He gives it simply dissolved in water or in the following combination:

- R Urea,
- Sodium bicarbonate,
- Calcium carbonate, of each 1 ounce.

S.: Half a teaspoonful four or five times daily.

It may also be given in gouty subjects with lumbar pains, when both its solvent action on urates and its diuretic effects do good.

Kohn (*Ztschr. für Heilk.*, Berlin, 1896, bd. xvii, s. 395) has not been able to form so high an opinion of the value of urea. He attended to Klemperer's advice only to give it in cases where the kidneys are healthy. He treated in all ten cases—four of hepatic cirrhosis with ascites, two of pleurisy with effusion, one of pericarditis with effusion, one of tubercular ascites, one of ascites from carcinoma, and one of ascites from cardiac disease—giving daily 75 to 375 grains. In each case the daily amount of urine and its specific gravity were carefully ascertained, and a comparison of the effects of urea and of other diuretics, such as diuretin, digitalis, calomel, and sodium salicylate, was made on the same patient. Kohn found that its action as a diuretic is uncertain, and that where it acts it does so by stimulating the secreting mechanism of the kidney. It has no unpleasant effects. In three of the above mentioned cases there was a marked increase of the urine, but in the others it failed to act; while digitalis, diuretin, calomel, and sodium salicylate all increased the urine more decidedly.

Bettmann (*Berl. Klin. Wchnschr.*, 1896, No. 49) has also tested Klemperer's results clinically. He treated twelve cases—three of liver cirrhosis with ascites, four of pleurisy with effusion, and five of other serous exudations—but in none were the results more than very moderate; 150 to 300 grains of urea was given daily in water, and the results are tabulated. The rise of urine in some cases—as slight, in others it was completely absent,

and in the former it was not enduring. In most of the cases up to six ounces of urea altogether, and in one up to eighteen ounces, were given without causing any unpleasant symptoms in the patients.

Von Noorden ("Real. Encyclop. der Gesamten Heilkunde," 1897, art. "Herzklappenfehler") states that in cases of general cardiac dropsy he has used urea in daily amounts of 90 to 150 grains with excellent results as regards an increase of diuresis.—*Edinburgh Medical Journal*, July, 1897.

#### CARBOLIC ACID GANGRENE.

CZERNY (*Münch. Med. Woch.*, April 20, 1897) observed that whereas some twenty-five years ago there were numerous records of carbolic acid intoxication, yet even in that period the occurrence of gangrene was rarely reported. After referring to some recorded cases, Czerny observes that hardly a semester passes in his clinic without a case of carbolic acid gangrene presenting itself, and he warns his students against the use of watery solutions of this agent. He gives details of three cases recently admitted to his clinic. In all the cases the carbolic acid solution was applied to a wound of the finger. Gangrene supervened, and amputation became necessary. This gangrene is of the dry kind. The anesthetic action of carbolic acid induces the patient to leave the dressing on. The part first becomes grayish-white and eventually black, without any sensation of pain. Circulatory disturbances caused by firm bandaging, inflammation, or a severe injury predispose to it. The above named patients were in robust health, and the injuries were not such as to induce gangrene by themselves. In two of the cases a three-per-cent. solution of carbolic acid was applied, but it was kept on for several days. The duration of the application is more important than the concentration. The author concludes that since with any solution of carbolic acid gangrene may under certain circumstances develop, this agent should be altogether avoided as a dressing, and other antiseptic solution used.—*British Medical Journal*, May 22, 1897.

#### IMMUNIZATION WITH ANTITOXIN.

In the *Archives of Pediatrics* for June, 1897, SHURLY concludes an interesting practical paper on this subject by saying that in private practise the use of the 250-unit dose has, so far as he has been able to observe,

been entirely satisfactory, no patients immunized having developed the disease.

If, then, present observations prove correct, we have a valuable artificial aid to the natural powers of resistance, that can be called into requisition at any time to combat the growth and increase of the diphtheria bacilli.

The following conclusions seem justifiable from his studies:

1. Previous prophylactic medicinal measures have been almost entirely successful.
2. As an attack of diphtheria immunizes the subject for a comparatively brief period only, nothing more can be expected of the antidiphtheritic serum.
3. Immunity is immediate.
4. Fresh serum can be generally relied upon to immunize for thirteen days. The writer's experience is based on the exclusive use of Parke, Davis & Co.'s antidiphtheritic serum.
5. No case of serious kidney disturbance, abscesses or eruption was observed.
6. Serum should be omitted in grave cases of chronic disease.
7. Other acute or chronic diseases are not affected by the serum.
8. The ordinary hypodermic syringe can be used for immunization.
9. The immunizing dose is followed by only a slight reaction.

#### *DIPHTHERIA ANTITOXIN.*

HENRY R. SLACK, Ph.M., M.D., La Grange, Ga., expresses (*Atlanta Medical and Surgical Journal*, November, 1897) a high opinion of antitoxin as a preventive and curative agent in the treatment of diphtheria. His own experience in private practise bears out fully the favorable reports made to the American Pediatric Society by its special committee, and the clinical cases recited by him testify to the prompt and powerful action exerted by antitoxin on both the local and constitutional symptoms of the disease. Dr. Slack concludes that the antidiphtheritic serum should be administered freely and promptly, as the loss of twenty-four hours may mean the sacrifice of a life. He recommends doses of from 1000 to 2000 units, according to the severity of the case, to be repeated in twenty-four hours if improvement is not manifest. A third dose may be given with perfect safety. Dr. Slack urges the use of the most concentrated strength of an absolutely reliable preparation. In his own cases he used diphtheria antitoxin of both foreign

and domestic manufacture. He prefers that prepared by Parke, Davis & Co. for two reasons: (1) it is put up in hermetically sealed, large-necked, glass bulbs; (2) it can be obtained fresher, thus increasing its reliability; while its entire freedom from fatalities, casualties or complications of any kind, its great concentration, and the promptness with which its curative powers are manifested, add to its usefulness.

#### *THYROID TREATMENT AS A MEANS OF CONSOLIDATION IN FRACTURE.*

GABRIEL GAUTHIER (*Lyon Médical*, June 27 and July 11) has been led by the remarkable effect of thyroid medication in cases of disordered nutrition of osseous tissue (myxedema, rickets, etc.) to try the same treatment in cases of retarded consolidation of fractures. Hanau and Steinlein (Frankfort Congress, 1895) had observed that in thyroidectomized dogs in which experimental fractures were made repair was notably delayed, and callus was formed in less amount than in healthy animals, and they threw out the suggestion that "ingestion of thyroid gland might be used by surgeons to promote the formation of callus." Gauthier gives his experience of the mode of treatment in two cases:

1. A strong, healthy country girl, aged fifteen, broke her left leg (*sic*) in the lower third. The fracture was simple, with over-riding of the fragments, which were easily reduced. The limb was put up in plaster of Paris. Union did not take place, in spite of the administration of phosphate of lime, rubbing of the ends of the fragments, etc. When 110 days had elapsed without consolidation taking place Gauthier prepared from the thyroids of young sheep a glycerinated juice, a teaspoonful of which represented one gramme (about fifteen grains) of thyroid substance. Of this the patient took from six to ten teaspoonfuls a day. During the first two or three days she complained of intense headache, flushing of the face, giddiness, and a feeling of suffocation, but a fortnight after the commencement of the treatment the fracture was consolidated, and a month later she could walk about as well as ever. Careful palpation failed to reveal any abnormality in the thyroid gland. The total amount of thyroid substance taken was 120 grammes.

2. A healthy man, aged forty-eight, suffered a fracture of the radius. The limb

was put up in plaster. After three months there was no consolidation. Thyroid treatment was begun, and continued for between three and four weeks, the total amount of active thyroid substance taken being about 160 grammes. Consolidation was then established. In this case, too, the thyroid gland was, as far as could be made out, perfectly normal.

Gauthier, while admitting that two cases are insufficient to prove the value of the treatment, thinks the results in the cases which he records suggestive and encouraging. He adds that whenever thyroid treatment is employed the practitioner will do well, whenever possible, to extract the thyroid himself instead of leaving it to the butcher to do so. Young sheep should be chosen for the purpose. That animal has two thyroids; hence two incisions should be made, one on each side of the trachea. If a median incision is made, especially in a very young animal, the operator is likely to take the thymus instead of the thyroid.

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*TENDENCY TO BENDING OF THE BONES  
IN CRETINS UNDER THYROID  
TREATMENT.*

In the London *Lancet* of October 2, 1897, T. TELFORD SMITH writes of this interesting question. He believes that one of the most marked among the many other signs of development produced in cretins during the administration of thyroid preparations is the rapid increase of growth in stature which takes place—an effect which is all the more striking when we remember that in these cases growth is almost at a standstill previously to treatment. The boy, notes of whose case are published herewith, grew four and a quarter inches in ten months under thyroid treatment, and his brother grew four inches in less than a year under similar treatment. As a point in the practical treatment of these cases the writer has found that during thyroid treatment this rapid growth of the skeleton leads to a softened condition of the bones, resulting in a yielding and bending of those which have to bear weight; and as cretins under treatment become much more active and inclined to run about, this tendency to bending has to be guarded against. The girl, aged seventeen and three-quarter years, shows this increased bending of the legs very well. She has now been continuously under thyroid treatment for two and a quarter years, taking one five-grain tabloid daily with her

dinner, and during that period she has grown seven and a half inches (from three feet six inches to four feet one and a half inches). During the period of two years previous to treatment she had only grown an inch (from three feet five inches to three feet six inches). For the last few months she has been kept as far as possible at rest, so as to prevent to some degree this bending of the legs. The bending takes place most markedly in the tibia and fibula, the increased size of the ends of these bones at the ankle and knee being very noticeable. Several photographs of cretins before and after thyroid treatment exhibited by Dr. W. R. Parker, of Kendal, and Dr. John Thomson, of Edinburgh, at the meeting of the British Medical Association at Carlisle, showed this increased bending of the legs very clearly, and the condition was remarked upon and discussed, Mr. Victor Horsley showing in this connection slides to illustrate rickets produced in rabbits by Hoffmeister, and in sheep and goats by von Eisenburg, by removal of the thyroid gland.

While in rickets, however produced, there is perverted and delayed ossification resulting in a softening and bending of the bones, under thyroid treatment in cretinism there is rapid resumption of growth in the skeleton, leading to softening, which is most marked in the long bones and at the epiphyses. Cretins under thyroid treatment should, therefore, be watched for any commencing bending of the bones of the legs, and if such appears the child should for a time be hindered from walking or the legs supported by light splints. As an additional means of assisting the rapid bone and other growth the diet should be generous, and the child should get plenty of sunlight and open air. The administration of cod-liver oil would probably prove beneficial at the same time.

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*THE OBJECTIONS TO CONDENSED MILK  
AS AN INFANT FOOD.*

It is self-evident that the best standard by which an infant's diet can be judged is the infant's normal food—breast milk. It is not alleged by any one that breast milk is always of exactly the same composition, or that it can be exactly duplicated by any artificial food, or that the stomach of the average child has no power of adapting itself to variations in food. But the composition of average breast milk is well known, and any food which varies widely from its proportions, with very little other evidence against it, must be condemned.



If we know that a given food contains but one-eighth the amount of fat and one-third the amount of proteid found in normal breast milk, we can reach but one conclusion regarding it—that food is not suitable for continuous use. Yet these are the proportions of a one-in-twelve dilution of condensed milk. If made twice that strength, the solution contains but one-fourth the proper amount of fat, but at the same time an excess of sugar, the greater part being cane-sugar. As a matter of fact, but few infants will digest condensed milk in a one-in-six dilution. It is rarely given in actual practise in a dilution of less than one in twelve. The objections to condensed milk as an article of infant diet were pointed out very clearly by Dr. Kerley in a paper recently read before the Pediatric Section of the American Medical Association.

No rational physician can believe that a food of such strength can form a proper diet for continuous use in any but the youngest infants. If further evidence were needed, the clinical experience of men who see large numbers of children is available. So far as we know no careful observer of large experience advocates the use of condensed milk alone, because children do not thrive on it. It is quite true that there are exceptions to this as to most rules, but it is folly to base one's practise upon a few exceptions rather than the rule. Dr. Holt with his large experience says that he has as yet never seen a child reared exclusively on condensed milk who did not show, on careful examination, more or less evidence of rickets. Dr. Rotch is equally positive in his statements.

The number of children over four months of age fed exclusively on condensed milk who show no sign of rickets or malnutrition is extremely rare. They are frequently fat, to be sure, but they commonly present striking examples of "fat rickets." As a rule they well fulfil Dr. Kerley's description of them as an "ill conditioned class of children, with their starved muscular and nervous systems, and catarrhal tendencies, who fall an easy prey to bronchopneumonia in winter and to the gastro-intestinal diseases in the summer, and to the infectious diseases during the entire year." As regards well nourished children who have been reared exclusively on condensed milk, Dr. Kerley aptly remarks that "we hear of more than we see."

The chief objection to condensed milk as an infant food is the fact that there is a slight deficiency of proteids and an excessive and almost fatal deficiency of fat.

If condensed milk is an improper food for infants, is it so irreparably bad that it cannot be changed or fortified so as to render it a desirable food? We would say that it cannot be made a desirable food; it may be made permissible. In many cases it is the only available food, and in some cases the most desirable that can be obtained. While granting this, we do not in the slightest degree advise its use when a better food can be secured. It is certainly a fact that the practitioner is sometimes obliged to use it. This occasionally occurs through obstinate persistency on the part of parents, but more commonly among the extreme poor, who cannot afford a more expensive food.

As the chief objections to condensed milk as an infant food are its deficiency in fats and proteids, two changes must be made to render it suitable for use; fat and proteid must be added. As the absence of fat is the greatest defect of the two, it must receive chief attention. This deficiency may be corrected by the addition of cream—an impossibility among the very poor. If cream is not available we may resort to cod-liver oil as suggested by Dr. Kerley. It is an excellent substitute and must be regarded as a food rather than a medicine, and must be given continuously, though the daily amount need not be large. The device of using a meat broth for securing the proteid, as suggested by Dr. Kerley, is an excellent one. As an occasional substitute for the broth, egg albumen may be utilized to supply the necessary nitrogen. The white of an egg may be thoroughly beaten up with the water with which the condensed milk is diluted. The chief objection to this plan is the difficulty of determining the proper proportions to be employed.

By thus modifying condensed milk a child may frequently be carried with fair success to the ninth month. His chances, however, of reaching that age without rickets will be far better with fresh cow's milk.

If the doctor who is wedded to the exclusive use of condensed milk would not make his fresh milk mixtures four to six times as strong as his condensed milk mixture he would be much better satisfied with fresh milk.

In deciding upon the value of a given food, the physician should not fix his attention upon the present so closely as to entirely forget the future. He should consider the remote as well as the immediate effects of the diet. His office is not alone to tide

over a few months and keep a baby quiet at any hazard, but to lay the foundation for strong and vigorous childhood. He will fail to accomplish this if he prescribes a food lacking in its essential elements, though the child may for a few months seem to digest it more readily.—Editorial in *Pædiatrics* for August, 1897.

#### THE DANGERS OF ARTIFICIAL RESPIRATION.

The most obvious thing to do, remarks a writer in the London *Lancet* of August 28, 1897, when a patient fails to take air into his lungs while he is under the influence of an anesthetic is to adopt some form of artificial respiration. In most cases, he says, the treatment is the correct one, but it must not be assumed that in every case in which the breathing stops artificial respiration is the first act to be performed. It is not free from danger; in more than one instance it has led to fracture of the ribs owing to some excited assistant pressing too vigorously upon degenerated bones. The writer refers to numerous cases in which foreign bodies have become engaged in the air passages, and have been discovered only after futile efforts at artificial respiration had been abandoned. Not infrequently, the writer continues, when abdominal section has to be performed to relieve intestinal obstruction there is a fatal tendency for the stercoraceous vomiting, which is so likely to occur during the operation, to result in matter being sucked back into the larynx. This is the great peril of the anesthesia in such cases, and every instance of death under it is a warning.

The following case, which came under observation of Mr. Cholmeley, of Wolverhampton, is cited by the writer as an illustration of this point: It appears that a man, aged fifty-eight years, exhausted by disease, was to be operated upon to relieve obstruction, caused, as was found at the necropsy, by an annular carcinomatous growth constricting the intestines at the ileocæcal valve. The general condition of the patient was very bad, and the operation had to be delayed by the patient's refusal to give his consent, so that at the time he was given the anesthetic his state was a grave one. He took the ether well. What degree of anesthesia was obtained was not mentioned. In ten minutes, the abdomen being opened, and the surgeon being engaged in handling the intestines to discover where the constriction was, the patient began

to vomit. He became livid and a gurgling sound was heard in his trachea. Artificial respiration was resorted to for a short time without improving the man's condition, and then tracheotomy was rapidly performed. A quantity of stercoraceous vomitus issued from the tracheal tube, and although the artificial respiration was kept up the man died.

There can be no doubt, the writer continues, that in cases where it is certain that vomitus has entered the lungs, the first thing to do, as was done in the present case, is to perform tracheotomy and draw out with some pump all the fluid that can be got from the air passages. Artificial respiration, when done by pressing upon the ribs and moving the arms, can only force the stercoraceous vomitus into the finer bronchi and effectually cut off any chance of the patient's recovery. It has been suggested that preliminary washing out of the stomach lessens the risk of vomiting, but it is not at present certain how far this can be relied on as a safeguard, since as the stomach is emptied a renewed regurgitation from the intestines is apt to occur. It seems probable that the inevitable manipulation of the intestines induces the reversed peristalsis which culminates in vomiting. Were this danger considered imminent it might justify a preliminary opening of the trachea and plugging above the tracheotomy tube, so as to effectually shut it off from the pharyngeal space. Whether such a procedure would increase too much the peril of the case experience alone can decide.—*New York Medical Journal*, Sept. 25, 1897.

#### SERUM TREATMENT OF LEPROSY.

Dr. JUAN DE DIOS CARRASQUILLA has reprinted communications made to the National Academy of Medicine of Bogota, Colombia, on the serum treatment of leprosy, and a report by Dr. Pablo Garcia Medina, the secretary of the National Academy of Medicine at Colombia, on Dr. Carrasquilla's experiments. It is evident from the account which Dr. Carrasquilla gives of his experiments that he is familiar with the technique necessary to carry through treatment of this kind, and considering the important results which he has obtained, it is satisfactory to find that they are vouched for by the secretary of the National Academy of Medicine.

When a leper is bled the serum which is obtained from the blood is stated to vary according to the lesions in the patients. In those who are severely affected, and who are

in a bad condition, the serum is milky, sometimes of a greenish color, and has a repulsive odor. If this serum is injected into a horse the animal, immediately after the injection, shows signs of suffering. If a leper is chosen who is not depressed in health, the serum is yellow, limpid, and odorless. This serum injected into a horse produces no morbid phenomena. A young, healthy, vigorous horse is chosen, and the method practised at the Pasteur Institute is followed. A minimum dose of fifteen cubic centimeters produces no reaction; a maximum dose of 150 cubic centimeters produces a violent reaction. Dr. Carrasquilla usually injects fifteen cubic centimeters in small animals, thirty in animals of middle size, and sixty in large animals. He repeats the injection every ten days, and ten days after the third injection the serum is taken, rigorous antiseptic conditions being practised.

It is first ascertained that no toxic reaction is produced by the injection into a rabbit or guinea-pig in a dose of one cubic centimeter per kilogramme of the weight of the animal. A first injection of one cubic centimeter of the horse's serum is then given to a leper, and the dose is gradually increased in the following injections. Usually there is no reaction until after the third or fourth injection. The normal reaction is characterized by a feeling of cold and rigors, which takes place from two to six hours after the injection, and which usually lasts for two hours. There is, at the same time, thirst, malaise, anxiety, headache, and coldness of the extremities. There is often a second or hot stage, whilst the feeling of cold and shivering continues. The pulse reaches 110 to 120 per minute, the temperature generally 38° to 39° C., and rarely as high as 40° or 41° C. Then perspiration follows and the reaction ends. The serum given by the stomach in doses carried as high as five cubic centimeters produced analogous symptoms, but only one experiment had been made at the date of the report.

With the establishment of the reaction from the serum the leprous lesions, it is stated, undergo remarkable changes. In a case of nerve leprosy, which is described in some detail, the result was decolorization of the pigmented spots, return of sensation to anesthetic patches, and general improvement of the health. In a case of marked tubercular leprosy, during the first week of treatment there was abundant desquamation from the surfaces of the tubercles and absorption

of the swelling. The leprous ulcerations began to suppurate freely, and to cicatrize with extraordinary rapidity; and ulcers, which previously were deprived of sensation, became sensitive. Tubercular ulcers and tubercles in the ears and nose disappeared, and the nose resumed its nasal shape. A similar healing process was established in the mucous membranes.

Similar results are described in other patients, and the secretary of the Academy states that the same process of healing took place in all the patients treated, which up to the time he wrote numbered about one hundred.

It is evident that we have here statements of great importance and gravity, and they are vouched for in a manner which makes it impossible for them to be neglected. It is clear that it is the duty of those who have large numbers of lepers under their charge to undertake the control of Dr. Carrasquilla's investigations.—*British Medical Journal*, Aug. 14, 1897.

[Still more recent trials of such serum in leprosy do not give encouraging results.—Ed.]

#### THE ADDRESS IN THE SECTION OF PHARMACOLOGY AND THERAPEUTICS.

Professor LEECH's address at Montreal is an admirable example of the interest and even charm with which a graceful touch and a well balanced judgment can invest a subject usually considered dull. Although he cannot refrain from the temptation to give a retrospect of his theme during the last sixty years, he enriches its bald facts with a wealth of illustrative detail which renders them palatable, and so adds greatly to their instructiveness. These sixty years have done even more for therapeutics than for other branches of medicine, for they have based it upon a new science—that of pharmacology. Before the method of experimental inquiry was applied to the action of drugs, the current views were always uncertain and often ludicrous. It is true that Pereira, the Linnæus of materia medica, was far nearer the truth than his fellows; but while giving him every credit for his great powers of observation, we cannot but feel that many of his correct opinions were only clever guesses. With the growth of the new science, systematic guessing has come to an end; in fact, the action of many new remedies can be approximately stated before they are tried or even manufactured. A certain wise empiricism is necessary to the

advance of science, but even this is governed by laws and kept within well defined boundaries.

Professor Leech lays appropriate stress on the strides in therapeutics which have resulted from a recognition of the relation between chemical constitution and medicinal action. This relation was to some extent realized by Paracelsus, but his views, being carried to excess by his followers, retarded instead of advanced the progress of the healing art. Not until the second quarter of this century was any attempt made at the scientific correlation of the facts observed and their establishment upon an experimental basis. Traube's confirmation and extension of Withering's clinical observations upon digitalis form an excellent example of this, and many others may readily be called to mind. A further step has been the introduction of synthetic compounds into practical therapeutics, partly as substitutes for drugs already in use, and partly as entirely new remedies. It is true that this has not been a wholly unmixed advantage, for of making many specifics there is no end, and the market is well-nigh flooded with what a distinguished surgeon was wont to call "those filthy coal-tar products." Still, many of them have come to stay, and Professor Leech wisely suggests that as our knowledge progresses we may be able to assign to each its proper and individual niche in the therapeutic temple.

But all other advances appear insignificant when compared with the introduction into practical medicine of products of the animal body such as gland extracts and antitoxic serums. The empirical use of the former, mainly as aphrodisiacs, is recorded from time immemorial; one of them is said to have driven Lucretius to madness, while learned disquisitions as to their employment and the terrible effects of an overdose will be found in the works of the Portuguese physicians, Abarbanel and Amatus Lusitanus. Brown-Sequard's unfortunate essay in opotherapy will also be fresh in the minds of all, and it is well known that many savages eat the brains of their slaughtered foes in order to acquire their cunning, and their hearts to acquire their courage. The futility of these efforts offers a suggestive contrast to the brilliant results which have followed the first use of the thyroid gland on scientific grounds. No less notable and, indeed, of even wider applicability, are the effects of antitoxic serum, effects which were predicted by scientific

reasoning before the introduction of the remedies.

Standing as we do on the verge of a new era in treatment, it would be rash indeed to attempt to predict the future of therapeutics. Professor Leech wisely refrains from the endeavor, but contents himself with, on the one hand, protesting, albeit mildly, against the hazardous generalizations of those who have been carried away by the new ideas; and on the other pleading for a more careful and complete study of the action of drugs both customary and recent. He justly emphasizes Schmiedeberg's view, that the first study must be the action of drugs upon undifferentiated protoplasm, the knowledge of which will form its sole accurate basis when complete. We must confess, however, that we cannot follow Professor Leech in regarding "catalysis" as an explanation of the action of chemical substances upon protoplasm. As a matter of fact, the example he gives is not one of catalytic action at all, as manganese dioxide is converted into the chloride in the process of manufacturing chlorine. Furthermore, McLeod has shown that in the preparation of oxygen from potassium chlorate with the aid of manganese dioxide, although the latter is unchanged at the conclusion of the process, it forms a succession of compounds during its continuance. Here we have a glimpse of the true nature of catalysis, a series of changes ending in the reproduction of the original substance, over which they have passed like a wave. We have emphasized this point because it seems to us that the future of all physiology, and therefore alike pathology and pharmacology, must depend upon the wider knowledge which we are bound to gain regarding catalysis, from which we can pass to the question of ferment action and the ultimate problem of all, the properties of protoplasm, or, in other words, the nature of life itself.

Reverting to the special subject of Professor Leech's address, it must be admitted that the limitations of opotherapy, or treatment by animal juices and extracts, are already becoming apparent. The unqualified success of the thyroid gland in the treatment of myxedema has not been followed by any commensurate results from the use of the pituitary in acromegaly, of the suprarenal in Addison's disease, or of bone-marrow in pernicious anemia. The fact that the administrations of these extracts have in some cases been usefully extended to affections not obviously connected with the glands em-

ployed—as, for instance, thyroid extract to psoriasis—tend to obscure rather than elucidate the whole subject. Serum therapeutics would seem to touch a wider horizon, for theoretically it should be possible to antagonize the poison of every disease known to be produced by a micro-organism. Nevertheless, this is not always the case, even with the limited number of affections already investigated. Thus, for instance, in tetanus it appears that a lethal dose of the toxin is as a rule present in the system by the time that symptoms appear, so that the proportion of cures wrought by its antitoxin compares very unfavorably with that in diphtheria. Thus we must freely affirm the justice of Professor Leech's criticism upon Behring's somewhat rash generalizations regarding the serotherapeutic millennium. Still, even here we must be cautious, for serum diagnosis may greatly widen the scope of serum treatment. The battle of the schools rages as fiercely as ever, and only the future can decide between them; but it is well that some one, speaking as Professor Leech does with authority, should temperately and dispassionately set forth the opposing views in order that those for whose sakes the fight is raging may see the goal of the combatants unobscured by the dust of the conflict.—*British Medical Journal*, Sept. 18, 1897.

#### THE TREATMENT OF UREMIC DYSPNEA BY ETHER.

GALLOIS has recently made a series of observations on this subject (*Thèse de Lille*, 1897). Being rapidly eliminated ether may be given in fairly large doses at a time without any danger of intoxication, and owing to this fact its employment under various conditions has been recommended. In cases of uremia with grave dyspnea two cubic centimeters of ether was injected night and day, as well as a dessertspoonful by the mouth in syrup between each injection. The injections must be made deeply in order to avoid necrosis of the skin. It will be seen from this that a considerable amount of the drug is given, and to this is attributed the good results obtained. A rapid and appreciable improvement is observed: respiration becomes much easier, the sensation of choking disappears, and sleep becomes possible. At the end of a few hours diuresis increases. The patients themselves become so sensible of the beneficial action of ether that they look forward with pleasure to the injections,

notwithstanding their somewhat painful character. This treatment must be continued for several days according to the severity of the case, and as a rule the interval between the injections is increased, according as the dyspnea improves. The drug may be discontinued in a week or so if diuresis have become regular. Much of course depends upon the amount of renal tissue available, for in those cases where the kidneys are severely diseased it is as apt to fail as any other method of treatment. The important point which the author emphasizes is the amount which it is necessary to give. This may vary from sixty to ninety-six cubic centimeters in the twenty-four hours, and the rapid absorption resulting from subcutaneous injection is of importance. This method differs markedly from the small doses of ether given on sugar and recommended by Eichhorst. The author has also studied the question experimentally, for he found that after producing dyspnea in an animal respiration became much more regular on giving a certain quantity of ether. He further finds that the drug produces no injurious effect on the kidneys, nor does it aggravate any existing lesion.—*British Medical Journal*, Sept. 18, 1897.

#### A STUDY OF THE ACTION OF ACONITINE ON THE MAMMALIAN HEART AND CIRCULATION.

In the September issue of the *Journal of Experimental Medicine* S. A. MATTHEWS sums up a careful experimental research made upon the hearts of dogs in the following manner:

The action of aconitine on the dog's heart seems to consist in:

1. A stimulation of the inhibitory mechanism, especially of the centers in the medulla oblongata.
2. An increase in the irritability of the muscle of the auricle and the ventricle, which leads to independent contractions of one or both of these divisions and culminates in fibrillary contractions in the ventricle.

The first of these is the only effect seen in the therapeutic use of the drug, and aconitine may therefore be considered to be indicated when it is desirable to stimulate the inhibitory center without acting on the heart muscle. Of course it has a further effect on the circulation through the stimulation of the vasomotor center, but this would appear to be of minor importance.

*MEDICINAL SOAPS IN THE TREATMENT OF SKIN DISEASES.*

The use of medicinal soaps in the treatment of skin diseases has some advantages over the use of ointments and pastes in that the superficial layers of the skin can be acted upon more rapidly and more energetically, while the effect can be easily graduated by varying the time during which the application is continued.

MULLER and GRUBE have prepared a new soft basis for medicated soaps which is named "savonal." This is prepared by saponifying olive oil with caustic potash in the presence of alcohol, the mixture to be kept cool. To a part of the clear liquid thus obtained is added very dilute hydrochloric acid in order to precipitate the fatty acids, which are then added to the remainder of the alkaline mother liquids until it is completely neutralized. The neutral soap solution is then evaporated to the consistence of an ointment. Thus prepared, the clear green soap is transparent, smells of olive oil, gives clear solutions with alcohol, water, and glycerin, and mixes perfectly with fats and many drugs.

The action of the soap can be rendered more energetic by the addition of alkalies (e.g., carbonate of potassium) or weakened by means of fats such as lanolin, but in most cases this is unnecessary.

A liquid soap basis is obtained by adding to the neutral soap solution a mixture of glycerin and distilled water and evaporating to a syrupy consistence. During a year and a half the authors have used this soap basis with good results; its absolute purity and neutrality render it superior to mollin or the soap ointment of Unna, which is unstable from excess of fat. The savonal is miscible in all proportions with many drugs, the following being a few of the combinations recommended: Carbolic acid (five per cent.), creosote (one-fourth to two per cent.), salol (five to ten per cent.), iodoform (five to twenty per cent.), balsam of Peru, ichthyol, tar, belladonna, camphor, menthol, tannin.

Combination of mercury with savonal constantly irritates the skin. Calomel may be used for syphilitic cases, and also corrosive sublimate, but the latter soon precipitates as calomel. A combination of naphthol, sulphur, vaselin, and savonal is strongly recommended for scabies "in wealthy patients." Resorcin in either liquid savonal, or the ointment with a little lanolin, is used in seborrhoeic eczema and acne rosacea. Chrysarobin,

lanolin and savonal are useful in chronic eczema and psoriasis. Iodine, iodide of potassium, and savonal may be used in gonorrhoeal rheumatism, and a solution of hydrochlorate of quinine in liquid savonal in seborrhoea with loss of hair.—*Medical Chronicle*, September, 1897.

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*ASTHMA: ITS RELATION TO ATMOSPHERIC PRESSURE; A RATIONAL AND SUCCESSFUL TREATMENT.*

J. C. BOWIE contributes a lengthy paper on this subject to the *Edinburgh Medical Journal* for August, 1897. After discussing its relation to atmospheric pressure he proceeds to commend a new plan of treatment, which we submit for judgment to our readers.

In the treatment of asthma—spasmodic and bronchial—intra-laryngeal injections of the following solutions are used; the quantity of the solutions injected and the amount of the agents contained in each injection being in accordance with the patient's age and condition. One drachm will be found sufficient for a child from five to ten years of age, two drachms from ten to fifteen; after this from three to five drachms will suffice at each sitting.

First solution: A five-, ten-, fifteen-, or twenty-per-cent. solution of menthol in olei amygdalæ.

Second solution: Two to five minims of a two-per-cent. solution of pure crystals of iodine in olei amygdalæ, added to each drachm of the first solution.

Third solution: Five minims of a ten-per-cent. solution of olei lupuli in olei amygdalæ, added to each drachm of the first.

The action of these agents, as especially applicable to the asthmatic conditions, is as follows: The oil is an emollient and a vehicle for carrying the agents in whole or part through the circulation already described. The menthol has a powerful and stimulating action upon the mucous membrane of the bronchi and the epithelium of the alveoli and capillaries, inducing them to give off the excess of serous fluids, thus relieving their congested state; its stimulating action upon the lymphatic vessels promotes absorption of the exuded lymph, relaxing the muscular spasm of the bronchi; its astringent action promotes contraction of the cells in the alveoli and capillary walls, thus enabling the cells to resist the excessive lymph transudation; its antiseptic properties lessen the tendency to

atrophy and degeneration of cell structure; its sedative action relieves the cough. The iodine promotes the absorption of the exuded lymph, it liquefies the sputum, thereby relieving the cough, and its antiseptic properties conserve the epithelial structures. The olei lupuli is a sedative and antispasmodic, and is useful during deep spasms.

If the patient be a victim to spasmodic asthma, with deep and frequent attacks, two or three injections should be given daily of a ten- to fifteen-per-cent. solution of menthol. But when the symptoms of an impending attack become apparent, two to five minims of the iodine solution should be added to each drachm of the menthol solution, and continued throughout the attack until a week after, when the menthol solution may be again used alone. At any time, if a menthol solution is being used and signs of wheezing show themselves, a menthol-iodine solution should be substituted.

In bronchial asthma a fifteen- or twenty-per-cent. solution of menthol should be used, until the inflamed state of the bronchi is overcome. If expectoration be difficult, a menthol-iodine solution is required as well as in the asthmatic state.

Should the physiological signs of any of these agents appear, it is better to reduce the strength than to eliminate either, but always inject the same quantity of fluid.

While injecting a patient under a deep spasm, great care must be exercised lest any of the injection should pass into the stomach. Should it do so it will cause distention of that organ, and seriously aggravate the patient's condition.

The relief experienced by the patient when the injection is given under wheezing is not realized when he is under a deep spasm, nor is the injection absorbed so quickly, which is attributable to the excess of lymph in the tissue spaces and lymphatic vessels. It is often expelled when the patient is under a deep spasm, bringing with it a considerable quantity of tough mucus with more or less blood, but giving decided relief.

The time required to overcome the morbid conditions varies with the age of the patient, the length of time he has suffered, the duration, depth, and frequency of the attacks, and the changes that have been established in the pulmonary tissues.

At first, in both forms, the progress made under treatment is seriously compromised by each succeeding attack. After a time, the attacks in spasmodic asthma become less

frequent and less severe. Each succeeding attack causes less loss of weight and strength, and less nervous prostration; the sputum is gradually reduced and changed in nature; the cough has a clearer note, and the line of constriction gradually passes from the back of the thorax to about the middle of the sternum.

Also, in bronchial asthma, the catarrhs become less frequent and severe; the expectoration is gradually reduced in quantity till the asthmatic condition becomes more prominent than the bronchitis during an attack, when it follows the same order as spasmodic asthma. As the line of constriction rises, the râles and bronchial breathing are commensurate with it.

As the treatment continues, bronchial breathing with a short gasping form of respiration takes the place of the deep wheezing and spasms, and may last a longer or shorter time, until, as the line of constriction ascends, it is replaced by a loud form of bronchial breathing which is not associated with any distress. The patient does not sustain any loss of weight, and physical and nervous prostration is *nil*. Then the line of constriction gives place to a feeling of tightness in the trachea, accompanied by a loud tracheal sound during respiration, and no râles are found. This is followed by a clear, hard cough, sometimes in paroxysms, and often associated with slight hemoptysis. Coughing or a sudden increased action of the heart may establish slight wheezing of a passive nature. If the barometric charts be compared with the above, it will be found that the patient is passing over—with very little discomfort—periods during which deep asthma was experienced.

The patients are injected two or three times a day until the line of constriction reaches the upper part of the sternum, when once a day is sufficient; but if the symptoms should show any signs of exacerbation, twice a day is necessary. At this stage intermittent treatment will suffice—that is, injections being given only when a cough and feeling of tightness trouble the patient. The patient's condition undergoes great improvement; he gains flesh, becomes more erect, and speaks with a clearer voice; the thorax becomes clothed with a proper muscular padding, and has a greater range of action. The age of the patients that have come under Bowie's care ranged from five to forty years. The length of time each had suffered varied from a few months to over fifteen years. The

time taken to overcome the conditions varied from a few months to over two years. The younger the patient and the shorter the duration of the disease favor early resolution.

Within certain limits bronchial asthmatic cases are no more difficult to resolve than spasmodic. The resolution of the asthmatic state, under treatment, takes place in the inverse order to that in which it was established. This treatment, if assiduously carried out, permits the patient, even in severe cases, to take outdoor exercise almost daily, and in time enables him to follow without interruption his daily occupation.

#### USE OF THEOBROMINE IN THE ASYSTOLE OF OLD PEOPLE.

Dr. E. BARONAKI considers theobromine to be the remedy of choice in the asystole of old people. It brings on rapidly a diuresis amounting to four, five, or six liters, and wards off the symptoms of uremia. This marked diuresis is especially noticed in the chronic asystole so frequently observed in old people accompanying edema, anasarca, and ascites. In the pulmonary or hepatic forms theobromine does not seem to have the same diuretic action. Diuresis may come on the very evening of the administration of the drug, but most frequently the following day. It leads to a marked improvement, the signs of uremia disappear rapidly, the respiration becomes better, and the patient is out of danger for some time.

The most marked diuresis is obtained when the use of theobromine has been preceded by digitalis. Association of theobromine with caffeine or with salicylate of sodium does not give better results than theobromine alone.

After venesection or scarification theobromine seems to recover its diuretic properties. The author believes in large doses. With two grammes (thirty grains) no appreciable diuretic effect is obtained, three grammes (forty-five grains) at least being necessary. Four- or five-gramme doses do not increase the diuretic effect. It is not advisable to continue the great diuresis for any long time. When the dangerous symptoms have disappeared the theobromine should be discontinued and iodides given. Dr. Baronaki has noticed as inconveniences of the prolonged use of theobromine, vomiting, nausea, vertigo, and phenomena of excitement. He has also observed an increase of the quantity of albumen in the urine.—*Medical Chronicle*, September, 1897.

#### THE PREVENTION OF PNEUMONIA FOLLOWING ANESTHESIA.

In the *Boston Medical and Surgical Journal* of September 23, 1897, WHITNEY points out that of late the attention of the profession has been called to the frequency of pneumonia after operations where anesthesia has been used. Whether it is really more common to-day than in the past is doubtful; but there are two factors which make it appear so: With the larger number of surgical cases a greater number of pneumonias may occur and yet the percentage remain the same; with the perfection of asepsis other infectious processes have been eliminated to such an extent that this one has an opportunity to develop unobscured, and thus has come into greater prominence.

Attempts have been made to prove that there is something peculiar to the pneumonia after ether, and directly attributable to that agent, and the name of "ether-pneumonia" has even been proposed. But the most careful observations have shown that the disease in the most fatal cases differs in no way from the ordinary fibrinous form, and the cultures have shown it is caused by the same class of micro-organisms, at the head of which stand the pneumococcus.

While all the ways by which these bacteria can enter the system are not known and their introduction by means of the circulation cannot be denied, still their direct route is through the air passages, and this is a perfectly rational assumption of their mode of entrance.

In the distribution of these microbes it has been found by Sternberg and others that they are present in the mouths of healthy individuals. It is probable that in such cases under ordinary circumstances the organism can render their action harmless. But there are exceptional conditions which render a person susceptible to pathogenic bacteria; and experimentation upon animals has shown that prolonged and profound etherization is one of the conditions which increases this liability to infection. The patient, therefore, is in the most favorable condition for the development of the germs if they can find entrance, which is favored by the inhalation of mucus and saliva in the unconscious state.

While much cannot be done to prevent this increased susceptibility beyond as short and light etherization as possible, the thorough disinfection of the mouth before anesthesia is within the control of the surgeon, and



should be as carefully attended to as the breast or leg that is to be amputated.

The details of this should be a thorough aseptic cleansing of the mouth, nose and pharynx at least twice—once in twelve hours and again immediately preceding anesthesia. Each time the teeth should be brushed, then the mouth rinsed, especially about the roots of the teeth, and the throat gargled several times with a warm solution of chlorinated soda:

℞ Liq. sodæ chlorinat., f 3 iij;  
Aq. menth. piper., f 3 ij;  
Glycerini, f 3 ij.

Afterwards the pharynx and tonsils are to be sprayed with a solution of:

Peroxide of hydrogen, 1 part;  
Water, 3 parts.

Then the nose is to be douched with a pint of warm saturated aqueous solution of boric acid, to which half a teaspoonful of salt has been added.

As a last detail the cone or sponge used for the anesthetic should be sterilized for each case.

It may be urged that to carry out the above in every case would be exacting, and it would be very well to do it if it was certain that the organisms entered in no other way. Our knowledge, unfortunately, does not permit at present a selection of cases for which such a course should be reserved, and therefore every patient has the right to demand of the man in whose hands he so implicitly places his body and life that he should be given every chance for a rapid recovery. And he is entitled to the benefit of every detail, if it can be shown to be consistent with the line along which the science of surgery is advancing.

#### CLIMATIC TREATMENT IN GRAND CANARY.

It is not often that the editor of the *Gazette* calls attention to comparatively unknown health resorts by the use of progress derived from climatological articles, but an interesting paper by MELLAND in the *Medical Chronicle* for August, 1897, is worthy of perusal.

The author mentions the fact that in dealing with cases of early phthisis, which first make their appearance during the summer, that the nearness of Canary, ease of getting there, and cheapness of living (when contrasted with Egypt and fashionable parts of

the Riviera) should be kept in mind by all medical men, and that such cases should be sent out at once. If they come to Canary they will find a dry summer temperature, as healthy or healthier than the winter. They can go straight up to Monte and remain there till October. When their symptoms have disappeared for the time, and the disease, at any rate, is temporarily arrested, they can then settle what their future course of life shall be. Patients often cannot be sent away in this sudden manner to a more distant healthy climate, such as Australia or South Africa, owing to the costliness of the proceeding; they are frequently allowed to remain on at home until it is too late in the autumn, and meanwhile their disease progresses. Towards November, perhaps, they get suddenly worse, and are then ordered off at once; they arrive in Canary, and what might have been a curable case if sent some months earlier is now incurable, and death is merely a question of so many years. The greater number of invalids arrive in November. To recapitulate the effect of the climate on phthisis, he has found it very beneficial in both the active first stage and the quiescent first stage.

In chronic fibroid phthisis without cavitation there is usually improvement after living two or three years in the island continuously. If cavities are at the same time present, there is usually drying up of these and diminished expectoration; the dryness of the air favors this. Several patients of this class have settled down to life in Grand Canary, have taken a small villa at Las Palmas to live in from October to June, and have lived at an altitude station for four months in the summer (usually from 1200 to 1800 feet). Three or four have got well enough to settle down to work in Canary; one or two have been there many years. The climate seems particularly suited for chronic fibroid phthisis.

In the more serious cases of the third stage of chronic tubercular phthisis with considerable cavitation, where a continuous residence is made in the island, life appears to be prolonged, probably from two to five years longer than if the patient lived at home and merely went away during the colder part of the winter. The cough, to a large extent, seems to go away, and the patient complains little about it; but the hectic fever remains to some extent, and the patient gets thinner and weaker, and seems to fade away from general marasmus with, at the last, edema and cardiac insufficiency. These serious cases

are not cured by being sent to Canary or anywhere else.

In first-stage phthisis characterized by hemorrhage the author has seen some very favorable results, and has come to look upon hemorrhagic cases as more hopeful than any other variety of phthisis. This has been the experience also of Madeira, and no doubt is also the general impression amongst practitioners, as regards prognosis generally in the various types of phthisis, that disease in which prognosis is so very difficult in any particular case. In the race for health the many fail, the few succeed, and the race is not always to the stronger. Two cases with very considerable hemorrhages, who wintered here six years ago (1891) for one winter only, have apparently become quite cured, and followed their usual occupation at home since, without return of any symptoms so far. (One of the cases had severe bleeding—sixty ounces in thirty hours—and was at the point of death from loss of blood; but although the case came out with a provisional diagnosis of fibroid phthisis, and there was dulness at the left pulmonary base, it was doubtful how far it was tubercular or exactly where the blood came from. The patient was then a child, and is now a robust adult.)

Melland thought at one time that the coast was better—theoretically, at any rate—for hemorrhagic cases than the hill stations; but he has now changed his opinion, for in several hemorrhagic cases he has seen more rapid improvement take place at stations of 1300 and 1800 feet in the summer-time. As in other cases of early phthisis, no doubt the coast is better from November till May, and the mountains afterwards. Hemorrhage does not seem to occur often at sea in early phthisis. He has only known one case out of many have any bleeding on the voyage to Canary.

In early phthisis with asthmatic symptoms and hemorrhage combined a more sedative climate like Madeira is perhaps indicated, though he has seen one case improved in Canary. The asthmatic symptoms, however, became bad again, so he was recommended to go to New Zealand to settle.

The climate is favorable in scrofula.

In laryngeal phthisis for five years he saw no case receive any benefit whatever. All these cases were severe, and had also severe lung lesions. The author does not know why they were sent out. During the last two years he has seen one case very much improved and two cases with very slight ulcera-

tion on the cords quite healed. One of these latter cases has also got rid of all his apical symptoms and looks perfectly strong again, and, as he has settled down to work in Canary, the author does not think he will have any recurrence. (He has been in perfectly good health now for eighteen months.)

Cases of tuberculosis of the intestine should not be sent to the islands on any account—they are usually aggravated.

Chronic bronchitis is usually much benefited by the Canary climate, and also chronic bronchitis with emphysema and dilated heart. Such cases are able to return home for the summer months—from June to October—but we find that they return to Canary with great regularity as winter comes on. Two such regular visitants Melland has seen return now for seven winters who would probably have not lived through more than two winters if they had spent them at home. In one of these cases the ankles became first markedly edematous eight years ago when on the Riviera, and although the edema returns with a subacute attack of bronchitis occasionally, it is not so marked as it was eight years ago.

In heart disease accompanied by occasional lung complications the climate is very favorable. A patient of the author's having lived two winters at the hotels, took a house and settled down to life in Canary, going home each summer. He has now completed his fourth winter, and for the last two years has felt perfectly strong. He has wintered away from home for the last fifteen years on the Riviera, in Australia, and elsewhere, but never was the cardiac compensation so complete as it has been the last two years now that he has become a regular Canary resident. He has forgotten that he was ever an invalid. These cases do well at 500 to 1000 feet elevation in the winter as well as in the summer.

Pure spasmodic asthma should not, as a general rule, be sent to Las Palmas or any of the coast resorts. In three cases out of four it is very much aggravated, and the author has had to send a large number of cases away shortly after arrival. The same may be said of Orotava and most of the ocean resorts. This seems to be caused by the large amount of ozone in the air caused by the break of the surf and the stimulative effect of the north-east trade wind. The worst wind of all for asthmatics is the very dry east wind from the Sahara. In only two or three cases has he seen improvement, and these patients have usually returned to the island. The percent-

age of ozone and the force of the wind rapidly diminish as we leave the coast, and one or two miles inland or six miles away at the Monte many asthmatics do well.

The climate which is required in Bright's disease being a mild, dry climate free from sudden changes, especially sudden depressions of temperature, is found nowhere better than at Las Palmas during the winter, from October to May. Both in Bright's disease and rheumatism it may be strongly recommended in preference to the more sedative marine climates. The less cloud and the more sunshine present at Las Palmas in the winter make it superior to Madeira and Orotava. Stations on the south side of Teneriffe, as Santa Cruz and Guimar, are suitable; but not those on the north, as the action of the skin is not so free under the "parasol" of cloud. The dry mountain summer climate in Canary, at Monte or Galdar, or above the clouds in Teneriffe, is even superior to the winter climate from its greater dryness, and the dieting can be carried out with perhaps less hardship to the patient than at home owing to the variety of vegetables and fruits. Fish are plentiful, and are taken up country daily; but the quality of fish in Canary is far inferior to what is caught in English waters. The grape cure can be practised from June to October in Monte. The best grapes cost about a half-penny a pound. Melland has seen four cases of persistent albuminuria in young adults under thirty years of age quite cured in Canary.

In rheumatism Melland has very great belief in the Canary climate, both in convalescence from the acute fever and also in chronic rheumatism. Both the position of the town of Las Palmas on a calcareous raised beach and the atmosphere are dry, and he believes that the coast resorts during the winter and the mountain resorts during the summer stand on a higher footing in the treatment of rheumatism than they do in the treatment of any other disease. There are, however, at present no modern hydropathic arrangements whatever.

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*THE INFLUENCE UPON NERVOUS AFFECTIONS OF OPERATIONS UPON THE FEMALE PELVIC ORGANS.*

The general trend of medical opinion of late years has been pretty steadily against the efficacy of operations upon the pelvic organs, especially oophorectomy, as a cure for mental or nervous affections, always ex-

cepting those cases where diseases of those organs demand such operation, independently of the nervous condition. At a meeting of the Association of American Physicians, in 1891, Dr. Wharton Sinkler, of Philadelphia, took the ground that it was unjustifiable to remove healthy ovaries in cases of nervous disease, and the late Dr. Lusk, of New York, said that he was tempted to regard such a proceeding as malpractice. A recent inquiry conducted by Drs. ANGELUCCI and PIERACINI, of the Provincial Asylum of Macerata, Italy, has afforded considerable information in the way of the accumulation of statistics of cases in sufficient number to warrant certain definite conclusions.

The data which they present are based upon reports made to them by heads of public and private asylums and psychiatric clinics in various countries, embracing a total of 115 cases in which surgical operations were performed upon the female sexual organs, either healthy or diseased, to combat some nervous disorder, or to remove diseased organs. One hundred and thirty-seven of the asylums and clinics interrogated had had no cases of the sort. Out of seventy-six alienists, directors of asylums or clinics, fifty-six more or less strongly disapproved of such operations, twelve had not had sufficient experience to warrant a personal opinion, five were uncertain, and only three favored such operations in the treatment of hysterical conditions.

Of the 115 cases, six were subjected to a simulated operation for the relief of hysterical conditions. Of the remaining 109 cases, sixty-five had healthy organs removed for the cure of nervous conditions, eighteen nervous patients had diseased organs removed, and twenty-six women neither insane nor hysterical had diseased organs removed. Forty-one cases of hysteria had healthy organs removed on account of the nervous trouble; of these seventeen became insane, ten grew worse, eleven were unaffected, and three were cured. Eighteen cases of hysteria had diseased organs removed; three became insane, six were unaffected, and nine were cured. Twenty-four women neither hysterical nor insane became insane after diseased organs were removed, and two others became neuropathic. Twenty-four insane women had healthy organs removed for the cure of their insanity; nineteen grew worse or were unaffected, and five improved or were cured. In only seventeen cases, therefore, were the results favorable, and of these only three were cured of hysteria or other nervous dis-

turbances by the removal of healthy organs. Inasmuch as six cases of hysteria were apparently cured by simulated operations the investigators naturally inquire how far, in these cases where actual operation was done, the influence of suggestion may have been felt.

As a result of their inquiry Drs. Angelucci and Pieraccini conclude that the removal of the uterus or its adnexa, if in a healthy state, is to be proscribed as a means of treatment of hysteria or insanity, and that the existence of hysteria is almost a contraindication for any serious gynecological operation. If any such operations are undertaken the indications must depend upon the gravity of the uterine or ovarian disease, and not upon any hope of a favorable influence upon the nervous conditions; the only favorable influence upon these latter conditions is in the way of suggestion. If all other means have failed in combating hysteria, a simple incision, simulating a laparotomy, may sometimes be admissible by way of suggestion.

Taking the statistics, as the present writers have done, from reports furnished by asylums and psychiatric clinics, it is possible that the proportion of cases injuriously affected by such operations is unduly large, since the physicians in charge of such institutions might have less opportunity for observing the cases which were entirely cured of any nervous or mental trouble after the operation. Nevertheless, any serious cases of nervous or mental trouble which were cured by operation would naturally have come under the observation of these men during the time when they were suffering from such trouble, so that the proportion is really nearer the truth than it might at first seem. Furthermore, as is well known, the statistics of cases from surgical reports only are too often based upon the immediate results of operation, without waiting to note the later developments in regard to any nervous troubles. It is therefore safe to accept the conclusions of Drs. Angelucci and Pieraccini, as indorsing the belief that the removal of healthy organs for the relief of nervous or mental troubles is wholly unjustifiable—*Boston Medical and Surgical Journal*, Sept. 23, 1897.

#### PALLIATIVE AND OPERATIVE TREATMENT OF FISTULA IN ANO.

BLAKE (*Boston Medical and Surgical Journal*, Sept. 2, 1897) makes an admirable addition to the literature of this subject. He

takes up the definition, etiology, extent, and symptoms of fistula *in ano*; then proceeds to a consideration of the anatomy and blood-supply of the part.

Treatment is divided into non-operative and operative. Under non-operative the methods are numerous, but all may be classed under one of the following heads: Simple cleanliness; dilatation of external opening and packing with gauze; application of caustics; introduction of ligature, preferably elastic.

The cases to which any of these methods are applicable are those not attended with acute inflammation, or the presence of much pus; those which are not extensive; those which present a direct tract, without diverticula or branches; those which do not extend through the levator ani muscle; and, probably also, those which are not tubercular, or which do not show symptoms of being tubercular, though to the exclusion of this latter class some writers would disagree.

It is obvious that this classification limits to a marked degree the non-operative treatment; but beyond these limits the writer is convinced that palliative treatment at present should not be advised or undertaken. Exception, of course, is made of those rather rare cases in which on account of age or the general condition of the patient there is a definite contraindication to operation, or in which the patient refuses operation, and desires treatment, which is given with the distinct understanding that it will probably be insufficient.

It is a fact that certain superficial or marginal fistulæ following fissures, or slight trauma, or very small abscesses, may heal, and heal permanently, if left to themselves and kept perfectly clean. Such cleanliness, however, must be persistent and scrupulous. Not only must the parts be washed at least once daily, and more often in warm weather, but they must be cleaned carefully after each movement of the bowels, and should be irrigated with some mild antiseptic or astringent, such as myrrh wash, or dilute liquor plumbi subacetatis. After the washing they must be made, and what is of great importance maintained, perfectly dry. After wiping out the sinus, filling it with some inert powder, or with powdered boric acid, is at times of undoubted benefit. Such treatment is monotonous and necessarily of long duration. The cases are rare in which it could be advised, and the patients who would carry it out are still rarer.

If packing with gauze is added to the cleansing we have a method which will undoubtedly be sometimes followed by success. The method is common enough in the sinuses which follow operations in other parts of the body, and owes whatever efficiency it possesses to the cleansing which precedes it, and to the slight irritation to the sides of the sinus to which the packing gives rise. If carefully and conscientiously carried out, it compels whatever healing takes place to progress from the bottom of the sinus upward, and it prevents pocketing of the discharge; it also helps to prevent the introduction of dirt either from the rectum or externally. Gentle dilatation of the external orifice, with dressing forceps or director, will facilitate the introduction of the gauze and the escape of the discharge. The frequency of the dressing varies with the amount of discharge, but will average approximately once in two days. Care must be taken not to pack too frequently or too solidly, as the former procedure may mechanically interfere with healing, and the latter prevent drainage. Iodoform gauze is unquestionably the best material, though baked gauze dusted with nosophen or aristol is also good.

The application of caustics is a direct step towards removal of the cause of the fistula, and exciting union by adhesion or counter-irritation. All sorts of caustics have been recommended. Until late years nitric acid has been much used. It has been supplanted by ninety-five-per-cent. carbolic acid, which presents decided advantages over it—among others, that of being far less painful, and of being able to act efficiently without the formation of so deep a slough. The fistula should first be cleansed by the injection of peroxide of hydrogen in 15–30 volume strength, or of permanganate of potash, and dried. A wisp of absorbent cotton is tightly wrapped about the end of a fine probe or wire, previously moistened a little to help the cotton to adhere. The cotton is saturated with ninety-five-per-cent. carbolic, and introduced into the sinus to the bottom, or to the internal orifice, and is then rotated and rubbed against the sides. Care is taken to prevent the healthy skin in the neighborhood from being moistened with the acid. The writer has usually applied the acid once in three days, but it is probably better to apply it oftener. In two or three cases the progress at first was rapid and satisfactory, but later on the more superficial part of the sinus was more obstinate in healing. In one case it

failed entirely, though it is only fair to say that this case had been operated on before, and has since been operated upon again, and is still not entirely healed. It was a good example of a case in which the palliative treatment should not be advised. It was undertaken as an experiment. Sinuses without greatly thickened walls are particularly favorable for this method of treatment.

The objections to this method are the possibility of using too great a quantity and producing too deep a slough. In obstinate cases it may be advantageously combined with a packing of gauze.

The use of some sort of ligature for the cure of fistula has been recommended for centuries. Various materials have been used. It is certain that the elastic ligature possesses more of the qualities necessary for success than any of the others. The elastic ligature in the past, however, has not been without its dangers. One case in which it was used died with the symptoms of septicemia, and two others developed secondary abscesses, though they were purposely confined to bed in the hope of avoiding such complications. These cases occurred some years ago, however, and since then the elastic ligature has been employed at the Boston Dispensary and at both the hospitals in Boston with perfectly satisfactory results.

The cases adapted for ligature are complete fistulæ, of not too great a depth, without diverticula, and past the stage of acute inflammation. The operation consists of passing the ligature through the fistula, and fastening the ends tightly together. The only difficult part of the operation is the introduction of the ligature. For this purpose several needles and probes have been devised, and Allingham has invented a formal suture carrier on a handle, in which the end of the ligature is carried through a guarded eyelet. These instruments are unnecessary as a rule. The writer in one case passed the ligature easily by simply bending down the tip of the ordinary silver probe over the end, then passing the probe and ligature through the fistula. The ligature is then put on the stretch, and either tied or, what is more easily done, caught between the edges of a split shot, which is then compressed by means of a strong pincers. It is at times advisable to dilate the sphincter gently, and it is often surprising to find how much the sphincter can be dilated without pain, if much care and a little time be devoted to the task; this is, of course, in the unetherized patient.

The ligature should be drawn as tight before fastening as its strength will allow, and it is best to test this before inserting it. If the fistula be a deep one, it is sometimes advisable to insert a small piece of gauze between the shot and the skin, to spread the pressure over a little greater area.

The ligature cuts out in from five to ten days, the fistula healing behind it, sometimes with remarkable rapidity; the tract at times is more than half healed before the ligature comes away. The pain varies a good deal; as a rule it lasts rarely more than forty-eight hours, and the patient may be on his feet the entire time. The most serious objection to the ligature is in choosing appropriate cases, for the simplest fistulæ are often found upon close investigation to possess unexpected diverticula.

The choice in operative treatment is practically limited to two methods: Free incision, with granulation from the depth of the wound to the surface; removal of the fistulous tract by dissection and uniting the wound by sutures to secure healing by first intention.

The second method may be modified in some cases by curetting instead of dissection.

These methods may be briefly described as incision and excision. In preparation for any operation on fistulæ the patient's bowels should be moved by cathartics, preferably saline, on the day preceding the operation, and, if possible, not more than two hours before ether is administered. The diet for a day or two preceding should be exclusively meat broths. The position of the patient on the table may be either that of dorsal lithotomy, or on the side on which the main opening of the fistula is situated, with the knees flexed sharply on the abdomen. Mechanical cleanliness must be encouraged by shaving, and antisepsis rather than asepsis sought for. So far as possible fistulæ should not be operated upon while acutely inflamed.

The sphincter must be always dilated fully, both to facilitate the discovery of the internal opening and to hasten healing. The fistula, or if there be more than one, the largest<sup>1</sup> of the external openings, is then investigated with a fine probe, particular attention being directed towards the discovery of branches or blind pockets. The opening into the bowel is often difficult to find, and it is the rule, rather than the exception to find that the tip of the probe can be made to travel up and down the rectal wall for some little dis-

tance without perforating it. The finger of the unemployed hand is now introduced into the anus and the orifice sought for. It is better not to force the tip of the probe through the mucous membrane if this can be avoided. It is advisable first to slit up the sinus from the outside a little at a time, with knife or scissors, in the hope of finding the inner opening as the operation progresses. The more carefully and thoroughly the incision is carried out, the better will be the chance of rapid and complete healing. Granulations or thickened sinus walls must be thoroughly removed by knife or curette, and small pus pockets or diverticula cleaned and scraped. The external sphincter may be freely incised in cutting the internal sphincter. It is desirable to leave part of its fibers intact, if this be possible; if not, it is absolutely necessary to cut through it at right angles, not obliquely, and it must never be incised in more than one place on pain of certain incontinence. Particular care must also be taken to avoid cutting the sphincters anteriorly in women, at the point where the fibers decussate, and are continued forward on the side of the vagina.

The simplicity of the operation, in the average case, tends to make the operator less careful in its execution. As the result depends essentially upon its thoroughness, too much emphasis cannot be placed upon the necessity of discovering and laying open all branches and diverticula, however short they may be. This can only be done by examining carefully the floor and walls of the sinus progressively.

When the internal opening is well above the upper sphincter, three methods may be considered: The sphincter may be cleanly incised at right angles and left to granulate; or it may be incised and held together by a deep suture; or the elastic ligature may be introduced, as suggested by Allingham, at the bottom of an incision which reaches to the lower margin of the sphincter.

All bleeding should be stopped as far as possible by temporary packing. In superficial fistulæ it is rarely necessary to tie vessels if the snap forceps be allowed to remain on them for a few minutes. After determining that the floor and walls of the wound are thoroughly cleansed, it should be packed, not too snugly, with a thin layer of iodoform gauze, and a pad and T-bandage applied. Some writers doubt the desirability of a suppository, but in an operation of any considerable extent it is better to insert it as a

matter of precaution. A quarter-grain morphine suppository is sufficient.

Horseshoe fistulæ should be thoroughly opened, but should be incised into the rectum in only one place, that opposite the larger opening if two exist. If there are multiple openings externally, paths of communication between them must be sought for, and can usually be found; they should then be opened from one to another and finally, in one place, into the rectum. In some cases the openings are so numerous, and the tracts so deep, that it is very advisable to do the operations at two sittings, attacking the deeper portions first and simply dilating the other orifices. Much ingenuity has been exercised in determining the most advantageous methods of making the incisions between the various orifices, but cases vary so much that no general rule more than the above can be laid down.

The fistulæ which are at once the most dangerous and most difficult are those which perforate the levator ani muscle and penetrate the subperitoneal space in the pelvis. To open these thoroughly demands a very deep and often bloody incision, but unless opened thoroughly the operation is ineffectual, for the levator ani closes down and retains the discharge above, tending to the formation of the so-called hour-glass fistula. If the fistula is in the usual position, posterior to the anus, there is much less danger of wounding the perineum. If it is anterior, however, this possibility must be carefully borne in mind. The opening in the levator ani may be stretched with Bigelow's dilator advantageously, and the packing must be inserted to the bottom. Old, deep fistulæ have been found to lead in all directions above the levator ani muscle and triangular ligament, and at times to perforate the bladder, the rectum, or vagina.

As a rule, the dressing should be changed on the second day after the operation, and each day after that. Thorough cleansing is essential, and it is better to use peroxide of hydrogen, permanganate of potash, or corrosive sublimate. The packing should be carefully introduced to the bottom of the wound, and in small quantity. Care should be taken not to allow pocketing of the discharge, nor to interfere with the granulation by too vigorous dressings. The bowels should not be moved before the fourth or fifth day, and an enema of warm sweet oil should be given and retained for one or two hours to soften the feces, before the soap-suds enema

which is intended to clean out the rectum. The diet after, as before, should be exclusively animal broths, for at least four or five days, since these produce least fecal mass. The patient should lie preferably on the side opposite the fistula.

The after-treatment is as important as the operation. The patient should be kept either in bed or lying down while there is granulating area of any considerable extent, as the motions of walking are not conducive to healing. In packing the wounds, iodoform gauze has given the greatest satisfaction.

The duration of the granulating process varies extremely. It is rarely less than three weeks, except in the most superficial cases, and often reaches three months and more.

Whenever the internal sphincter is involved the patient must be expressly warned beforehand of the possibilities of incontinence. Rarely is it true of solid feces, but often of gas or liquids; and not infrequently this is a permanent condition. An insufficient sphincter, for which the owner is unprepared, is a memento of the operation which is not relished by either patient or surgeon, and is a poor exchange for a fistula which may have been but a slight annoyance.

Sinuses in various parts of the body have been excised and sutured for years, and there is no good reason why favorable cases in the ischio-rectal fossa should not be similarly treated. The essentials of the operation are that it shall be possible to remove the cause of the sinus, to convert it into a clean wound, and to keep it clean. If these conditions are obtained and maintained, the result will be healing by first intention. The type of fistula therefore to which this method is applicable is non-inflammatory fistulæ, of moderate extent, with few branches; and also blind internal fistulæ of all varieties. In one case the writer has sutured a horseshoe fistula with excellent result. The fibrous walls must be removed, preferably by dissection, sometimes with the curette. Granulations or pockets must be cleaned out with curette or Paquelin cautery, hemorrhage stopped, and the walls approximated by deep sutures. Silk is the material usually used. It is advisable to introduce each suture so that it encircles the wound and does not pass through its sides. For this purpose the so-called fish-hook needle has been invented. A strong needle with a sharp curve is essential, a Hagedorn preferably. The sutures vary in number according to the length of the fistula, and should be inserted at least as often as

half-inch intervals. Sutures are removed in from three to six days; the dressing should be a wet corrosive pad, 1:3000. The pain following the operation is apt to be greater than in simple incision. If the case is not progressing favorably, heat and redness increase, with the signs of retained pus; the stitches are removed alternately, and even in these cases a considerable amount of union is often gained. It is sometimes advisable, especially in old fistulæ, to insert an iodoform bougie into the bottom of the wound, and sew the sides together around it.

In superficial fistulæ it is almost invariably successful. In deeper cases it sometimes succeeds unexpectedly. It has never found much favor among English operators. It would seem that the operation of excision for fistula will find a larger field in the future. Its obvious advantage is in the time gained in convalescence.

#### THE SURGICAL TREATMENT OF ENLARGED PROSTATE.

HELFERICH, of Greifswald, in introducing the discussion of this subject (*Trans. Cong. Germ. Surg.*, April, 1897), referred to the fact that although operations on the several organs had been practised during the last four years all over the civilized world, these operations are still *sub judice*. The statistics collected by Bruns embrace 148 cases, in which both testicles were removed; there were twenty-three deaths, and in eighty-three per cent. of the remainder the prostate is stated to have diminished in size. Socin, of Basel, collected 175 cases, in four-fifths of which there followed decided atrophy of the prostate; in three-fourths the contractility of the bladder was regained; in forty-five per cent. the urinary functions were restored to the normal. Death followed in 13.5 per cent. Kohler reports seventy cases in which a resection of the vasa deferentia was performed; of these, three died, thirty-six were restored to health, sixteen were improved, and fifteen remained *in statu quo*.

Experience has shown that although the soft glandular prostate is more likely to diminish in size after either of the above operations, it is not possible to forecast the result in any individual patient; and that in a certain number of cases the operation may be followed by mental depression of considerable gravity. After reviewing the other operative measures, the author concludes that although a more certain and more radical

cure may be attained by those which are directed against the prostate itself, there are still cases in which the "sexual operations," with all their drawbacks, are to be preferred and are to be recommended to the patient. Socin pointed out that the diminution in size of the prostate, observed after castration, is entirely dependent upon the emptying of the veins; diminution of the prostate has never been observed on post-mortem examination.

Borelius, of Karlskrona, submitted the statistics of 102 cases, in which one or other of the sexual operations had been performed by Swedish surgeons (double castration in fifty; bilateral resections of the vas deferens in forty-six; castration on the one side and resection of the vas on the other in six). The results showed that sixty were improved, sixteen were not improved, four were uncertain, and twenty died. Inasmuch as forty-three out of the sixty who were improved represented cases of uncomplicated retention, and would probably have benefited quite as much without operation, one can only characterize the results here given as very unreliable.—*Centralblatt für Chirurgie*, July 17, 1897; *Edinburgh Medical Journal*, October, 1897.

#### A SERIES OF CATARACT OPERATIONS (ONE HUNDRED AND FIFTY-EIGHT).

RANDOLPH publishes a careful statistical contribution to this subject in the *Bulletin of the Johns Hopkins Hospital* for October, 1897. Two of the cases are especially interesting as being instances of maniacal excitement, possibly due to the use of atropine after the operation. The first case was a colored man, operated upon in the poorhouse of Mineral County, W. Va. He was seventy-five years old and had been practically helpless from cataract for a year. Atropine was instilled immediately after the operation. The next morning the physician was sent for and reported to the author that the patient had gotten up during the night, torn the bandage off, secured a razor, cut his throat in several places, and was bleeding profusely when found. In the excitement which followed the eye was forgotten, and it was some time before the bandage was replaced. He was quieted, and seven days later—that is, on the eighth day after the operation—he disappeared from the poorhouse, and two months afterward was seen by Dr. Hoffman twenty miles distant, where he was chopping wood and apparently getting along with absolute comfort.



The other case was also a very old colored man, eighty-eight years of age. The operation was simple extraction, and atropine was instilled as usual at the operation. Before daybreak of the next day he was a raving maniac and had to be tied down to his bed. His bandage was torn off several times, and he was incessantly tossing his head from side to side, until that too had to be secured so as to be as far as possible immovable. He did not recover his reason for a week, and all that was done was to apply hot moist compresses to the eye. When he became rational and the reporter was able to get a satisfactory view of the eye, he found a rather small pupil, a slight prolapse, but very little pericorneal congestion. On the tenth day he seemed to be completely himself again, and as the eye evidently needed a mydriatic, one drop of a solution of atropine (four grains) was instilled, and the nurse was instructed to repeat the dose at bedtime. When he returned to the hospital the next day he found that during the night the patient had jumped out of the window, twenty feet from the ground, scaled a high iron-spiked fence, and was making off when overtaken by an orderly. Notwithstanding all this exposure he obtained 20-70 vision. Nothing was done for the prolapse, which flattened out entirely.

Another interesting case was where the anterior chamber remained open for seventeen days. The operation was the combined one, and the wound had united about halfway up on one side, and the rest of the incision remained open. More than once during these seventeen days a spatula was passed beneath the corneal flap, and it was easily seen that no union had taken place. The operation so far as could be seen appeared to have been normal—that is to say, there was not the slightest hitch in any of the steps. Atropine and compress bandage were employed, and two weeks after he left the hospital his vision was 20-200. Eight months later he returned to the hospital with serious iritis, and since then vision has been lost, though he still has light perception.

Iridectomy was performed in 102 cases and simple extraction in forty-two cases. Soft cataract was operated upon by needling in three cases.

In thirty-one cases the vision was not tested. Three of these cases were in very young children, and any subjective test would have been very unreliable. The remaining twenty-eight were some which he had operated upon at a distance and most of

whom he saw only once after the operation. A number of cataract glasses were sent to them from which to make a selection, and in this way he learned to what extent the operation had benefited the patient. The operation and healing process were uncomplicated in all of these cases and all obtained useful vision.

The failures were as follows:

In Case 54 the operation was smooth, and when the bandage was removed she could see large objects in the room. This was on the seventh day. Two days later iritis of a very sluggish character developed, and in spite of all treatment ended in closed pupil and light perception. Dr. Harlan, of Baltimore, operated on the other eye and obtained good vision, but the operation was also followed by iritis.

Case 72 had an exactly similar history.

Case 95 was one which the writer treated for several months for dacrocystitis. Her left eye had been operated upon by a New York oculist two years previously, and the cause of the failure in the case of that eye was no doubt the same as in the case of the eye upon which Randolph operated, for both eyes were affected with dacrocystitis. When first seen she had a fistulous opening which had been discharging for several months. Before operation she was under treatment for at least five months, during which time the fistula had closed and the epiphora had almost disappeared. The cornea sloughed within a week after the operation.

Case 137 was that of a man eighty-one years old. On opening the eye on the third day there was a very offensive discharge on the bandage and between the lids, and beginning clouding at the edge of the corneal wound. Vigorous local and constitutional treatment, however, prevented the corneal trouble from extending, and he was left with a clear cornea and closed pupil. The author thinks he could have converted this failure into a success by iridotomy, but a few days before the proposed operation he was attacked with pneumonia and died on the eighth day.

The last case was that of an old colored man.

In one case (male, both eyes 67 and 68) the patient had good light perception, but after the extraction of the cataracts it was observed that while he could move about somewhat better his sight continued very poor, and this was explained by the existence of optic nerve atrophy in both eyes.

In two other cases a cataractous lens (congenital) had undergone calcification and presented a bright white mass in the pupil. The operation was simply for cosmetic purposes.

As to prolapse of the iris: In the forty-two cases of simple extraction there were five prolapses. In three of these cases nothing was done; under a compress bandage and atropine the hernia in one smoothed over and the patient now has vision 20-40. In one case the prolapse got worse from day to day till it nearly filled the wound, and it continued bulging more and more. There was no hernia on the second day when the eye was inspected, but the patient had a little gush of tears that night followed by pain, and a small hernia was visible the next day. On the eighth day, fearing that the eyeball would be permanently disfigured (to say nothing of loss of sight), the protruding iris was cut off. There is now not the slightest ectasia of the cornea so far as can be seen, and the patient has 20-30 vision.

In these last two cases lacrimation and photophobia were present to a marked extent, and some little pain was felt at the time when the prolapse occurred, but after this pain was conspicuously absent. So far as could be seen there were no evidences of infection in any of the cases of prolapse. By evidences is meant cloudy media and exudates. The absence of infection in these and similar cases is to be attributed to the fact that the wound is filled with the protruding iris and probably there is no way for the bacteria to make entrance into the anterior chamber. The profuse lacrimation which is usually present must be regarded as more or less protection from a mechanical point of view—i.e., to some extent in washing away bacteria. An examination of the statistics of simple extraction will disclose the fact that the failures are as a rule not associated with prolapse.

In commenting upon the visual results it will probably strike many as singular that 20-20 was obtained only four times, but this may be explained by the fact that discission was performed only ten times, and that in quite a number of cases the writer made no test of the vision.

In all of the operations the incision was made well within the limbus of the cornea, and still a little further in at the top of the incision. The latter includes usually something less than half the circumference of the cornea.

The instruments, with the exception of the knife, are boiled. The knife is allowed to remain in Squibb's absolute alcohol for twenty minutes. The eyebrows and that side of the face are covered with a cloth saturated with a solution of sublimate 1:1000. Both the cocaine and atropine solutions are boiled in test tubes and only used once. Small pledgets of cotton secured by sponge-holders and boiled are used for removing débris from the field of operation, such, for instance, as strings of mucus and small clots of blood. The unoperated eye is closed till the second day, and a small pad of sterilized absorbent cotton is placed over the operated eye and over this a four-tailed bandage. The eye is inspected on the second day, and earlier if there be unusual pain. The room is darkened, but is not uncomfortably dark. The patient is allowed to get up on the second day, and the bandage is removed on the seventh day, though there was a time when the author removed it earlier.

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#### THE SURGICAL TREATMENT OF WANDERING SPLEEN.

STIERLIN (*Deutsche Zeitschrift für Chirurgie*, 45 bd., 3 and 4 heft, 1897) contributes the history of a case of wandering spleen which was treated by coelio-splenectomy. The patient was thirty years old and suffered from typhoid fever and malaria. The latter condition lasted intermittently for two years and left her with a hard swelling under the left costal border which pained her upon walking. After each pregnancy she noted the swelling became increased; massage also seemed to stimulate this growth. On examination it was about the size of a man's head, was movable, and resting on the symphysis. It appeared to lie immediately beneath the skin and presented a notch. It was extremely movable. A median incision was made from the navel outward. The spleen was readily delivered through a comparatively small wound. The pedicle, about eight inches wide, was, after isolation and ligature of the main artery and vein, seized in forceps, divided, and ligated by two rows of lock ligatures. During operation the patient's condition was very good. Immediately on removal of the spleen there was marked weakening of the pulse. This was transitory, however, the heart again regaining its normal tonus promptly. Twenty-two hours after operation the patient was found

in complete collapse, with thready, uncountable pulse, Hippocratic countenance, and dry, crusted tongue. A liter of salt solution was injected into the rectum, and this was repeated twice during the day. The patient gradually reacted and the following day was in good condition. Two days later vomiting began. Repeated enemata were ineffectual in moving the bowel, and meteorism became pronounced. The next day a large dose of castor oil was given by the mouth. At the same time the same drug was administered by enemata. This treatment was efficient; vomiting and meteorism immediately disappeared, the temperature rose the same evening and remained up for over a week. This patient reported a year later apparently perfectly well, excepting for a retroflexed uterus which caused constipation, and which she wished remedied. This wish was gratified.

The author observes that since wandering spleen is usually one of the symptoms in splachnoptosis, with but few exceptions it is noted in women. The affection is, however, comparatively rare, Huber having failed to note it in a single one of his twenty-eight cases of enteroptosis.

It is probable that the spleen has little tendency to wander in enteroptosis, unless it is enlarged.

The diagnosis of the affection is easy when the organ is accessible to palpation, since the incisura is almost unmistakable. Under other circumstances the nature of the affection cannot be determined without operation, as when the organ lies deeply it is readily confounded with wandering kidney, or when peritonitis, or at least meteorismal tenderness, develops in consequence of twisting the pedicle.

#### THE INFECTIOUSNESS OF CHRONIC URETHRITIS.

The *Johns Hopkins Hospital Bulletin* for October, 1897, contains an interesting paper on this subject by E. R. OWINGS. In conclusion the writer presents the following propositions:

In many cases of chronic urethritis we are unable to demonstrate the presence of the gonococcus; these cases are probably non-infectious.

In any case the possibility of infection as compared to an acute urethritis is small.

A urethritis due to an attenuated organism, and consequently modified in intensity, may be contracted from a chronic urethritis.

Conversely:

Several negative examinations of the secretion from a chronic urethritis do not prove its non-infectiousness.

The infectiousness or non-infectiousness of a chronic urethritis can only be determined by frequent and careful examinations of the secretion, and if these prove negative, by the non-appearance of the gonococcus after the application of Neisser's test (an acute urethritis caused by saline nitrate injections).

#### INTESTINAL SUTURING.

KUZMIK (*Deutsche Zeitschrift für Chirurgie*, 45 bd., 3 and 4 heft), after a lengthy discussion of the various methods of intestinal suture, completes his paper with the following conclusions: Solution of continuity of intestinal tract, however it may be caused, is preferably restored by suture, the best being the Czerny-Lembert, the Kummer, and when speed is an important element the Maunsell-Ullmann.

When it is imperative that the operation should be completed at the earliest possible moment the Murphy button and direct suture are preferable. The Murphy button should always be reinforced by the Lembert suture. When gastro- or entero-anastomosis are required Senn's method is to be commended, but the opening must be a very large one. Every intestinal suture should be so applied that the mesentery is not separated from the gut; the Czerny-Lembert suture is probably the most popular method. This consists in a first row of sutures including all the coats of the bowel excepting the mucous, and approximating the divided edges. This line of sutures is then turned in by a second row, including all but the mucous coat of the gut, but passing in and out on one side of the wound, across it, and in and out on the other side.

Kummer applies the first row of sutures to the mucous and submucous tissues, approximating the cut edges; the second row takes in the muscular and serous coats. Before attempting suture, the mucous membrane together with its fibrous base is separated from the outer coats for from half an inch to two inches. The mucous membrane is then united by direct suture after its ends have been resected, and the outer tube, made up of the muscular and serous coats, is brought together by what is practically a Lembert suture.

The particular advantages claimed for this operation were the avoidance of cicatricial contraction because of the accurate union of the mucous coat and the assurance against the needle penetrating into the lumen of the bowel in the application of the outer layer of Lembert sutures.

The Maunsell-Ullmann operation, commonly known as the Maunsell, consists in uniting the divided ends of the bowel by four sutures passed through all of the coats. These sutures are placed one at the mesenteric attachment, one at the convex border, and the remainder at the sides midway between these two. The upper bowel loop is then opened about two inches above the seat of section by a two- to three-inch incision placed on the surface furthest removed from the mesentery. Through this opening four threads uniting the cut ends are drawn by pulling upon them; the seat of suture is delivered through this longitudinal opening. Threads are then passed, making a complete ring of sutures, are knotted, and the bowel is drawn back again to its normal position. The longitudinal wound is then closed by the Lembert suture, and the seat of transverse suture is also reinforced by a line of Lembert sutures.

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*SUCCESS OF DITTEL'S ELASTIC LIGATURE FOR HEMORRHOIDAL NODULES.*

Recovery followed in every one of the 269 cases that have been treated in Dittel's service; twelve days was the average time. No anesthesia is used except Schleich's local infiltration. The curved polypus forceps are guided by a finger of the left hand inserted into the rectum. By turning the forceps ninety degrees the nodule is brought up out of the anus and with the surrounding mucosa is then ligated with an elastic cord stretched to its utmost. The nodules lose their vitality in eight to ten days and drop off, leaving a clean granulating surface. The external anal skin must not be included in the ligature, as this is very painful.—*Journal of the American Medical Association*, Nov. 6, 1897.

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*WHAT CAN BE ACCOMPLISHED BY TREATMENT OF EUSTACHIAN TUBE, WITH SPECIAL CONSIDERATION OF THE TREATMENT OF CHRONIC STENOSIS.*

GEORGE MORLEY MARSHALL (*University Medical Magazine*, November, 1897) in a

paper on this topic briefly recalls the anatomy and function of the Eustachian tube, in so far as they concern the measures advocated in this paper. The Eustachian tube is the passage between the naso-pharynx and tympanic cavity—in length thirty-three to forty millimeters. From its relatively large pharyngeal mouth it extends twenty-five millimeters, with walls formed by an incomplete furrow of fibro-cartilage, consisting of a posterior and anterior plate, the anterior being a movable one. This portion of the tube, where not cartilaginous, is membranous, which, with its lining mucous membrane, has considerable thickness. This cartilaginous portion of the tube unites with the remaining ten to fifteen millimeters of the osseous portion of the tube. At this angle the lumen of the tube is smallest—that is, two to three millimeters.

The walls of the Eustachian tube are lined by glandular mucous membrane, with ciliated cylindrical epithelia, whose ciliary movement is directed towards the pharyngeal opening, which has a lower level than the tympanic opening. The lining of the osseous portion is smooth and closely incorporated with the periosteum. With surrounding conditions normal, the normal Eustachian tube allows the passage of air, not with absolute freedom, for the tube at rest has its sides in contact, but with sufficient freedom to establish an approximate equality of atmospheric equilibrium, allowing the secretions of lining membrane of the tube and of the tympanum to escape or evaporate. But if atmospheric pressure is not approximately equal, the air in the tympanum is absorbed by surrounding liquids through the walls of blood- and lymph vessels, obeying the law that liquids absorb their own volume of associated gas, and thus, the air not being renewed in the tympanum, there follow the well known symptoms—deafness, feeling of fullness, a probable tinnitus, autophonia, but especially that decisive sign of present or former obstruction, the appearance of the retracted tympanic membrane itself.

But with retracted membrane the alert aurist would not jump to the conclusion necessarily of an obstructive Eustachian tube, as turgescence or hypertrophy of the turbinated bodies alone might account for the rarefied air to a considerable degree. Still more will the pressure be out of equilibrium if the opening between pharynx and naso-pharynx be occluded.

We must believe that many cases of lesser

degree of obstruction at this point (the nasopharyngeal opening) would still have the effect of disturbing the equilibrium of atmospheric pressure in the tympanum, and the above cases are only cited because of the absolute demonstration of the effect of rarefied air in the naso-pharynx. Other lesser obstructions, as adenoid growths, which the author believes directly arise from a previous nasal obstruction, although possibly a temporary one, and which, producing this rarefied condition of atmospheric pressure, will, with its continuous yet slight suction power, so affect the yielding tissues of the infant as to cause venous congestion favorable to the growth of adenoid tissue. Thus he believes adenoid tissue, instead of being responsible for venous congestion, as is maintained by prominent authorities, is itself one of the sequelæ of the congestion.

Although certainly the continued presence of lymphoid growths favors also the continued congestion and obstruction, so likewise hypertrophies of the turbinated bodies, deflected septi, nasal polypi and nasal spurs may interfere with the ingress and egress of air, and therefore the resulting equilibrium of atmospheric pressure, and they must therefore be removed by appropriate operation or treatment before attention is directed exclusively to the Eustachian tube itself.

Now, if obstruction of nasal passages or nasal pharynx produces this want of equilibrium in the tympanum, so much more will stenosis or occlusion of the tube itself, and this will lead to that venous congestion of the tympanum which the writer believes is responsible for a very large majority of cases of chronic tinnitus aurium, as well as chronic deafness resulting from sclerosis of tympanic membrane and associated structures, for not only is the circulation of the blood abnormal, but the reverberating sound-waves of the blood-currents have no longer their normal exit, but are as in the closed sea-shell which confines the sound in unbroken walls. This tinnitus has been removed for several days after the relief of the venous congestion following the removal of a nasal spur with free hemorrhage, and so is explained the relief after depletive measures, as by cathartics and pilocarpine, which give temporary relief. But the belief that free ingress of air into the tympanum will at last relieve the congestion, and therefore the tinnitus, has been borne upon the writer, especially during the last two years, by the results of a more systematic bougieing of the Eustachian tube,

where stenosis of tube or retraction of tympanic membrane existed. Marshall has a tabulated series of thirty cases which had long become chronic, and which will therefore be of more interest because of the usually intractable nature of such cases. Seventeen were chronic cases of tinnitus, and all chronically deaf, with one exception, which, although a marked case of chronic tinnitus, exhibited no degree of diminished hearing, yet was the first stage of venous congestion. After systematic bougieing, the results in these seventeen cases were as follows: Seven were made entirely free, five improved to such a degree that it became no longer troublesome, while in the other five there was no reported change. But with one exception those who did not improve had but few treatments. In two of the favorable cases, although the tinnitus had been constant for six or more years, it was removed only after six months of treatment. In the twenty-nine cases of chronically deaf, one only was restored to normal hearing, seven were very much improved, five slightly improved, one heard better in one ear, but worse in the other, while in nine there was no change. One of these cases was of deafness without tinnitus, which was decidedly improved by the bougie, although the air douche had previously failed to relieve to the same extent; yet in this case there was relapse to nearly the first condition, although bougied for quite a year. But in no case was there an unfavorable result, unless it was in one case who, six weeks after her last treatment, was taken with an acute middle-ear trouble, which soon subsided; but the patient had been in the interval perfectly free from pain—in fact, relieved in a degree from deafness—and she attributed the inflammation to a severe cold, quite independent of bougieing.

The writer speaks of this as a possible sequel, as he has been particularly watchful for any possible bad effects of the bougieing. Thirty may seem too small a number from which to draw sweeping conclusions, yet the good results in these few cases may have been due to the method used in its performance, and he therefore states his method in the form of rules, which are upon selection of cases, viz., those with retracted membrane and which receive temporary relief by the air douche or massage. His conclusions are as follows:

Never delegate the work to another.

Never do it hurriedly, but always count upon having, if necessary, one-half hour for

the operation. Usually it may be done in a minute or less, but difficult cases arise; if done leisurely it is surprising how easily an apparently difficult case becomes.

Have properly fitting, well-shaped Eustachian catheters. Those from Reiner, in Vienna, have given Marshall perfect satisfaction during ten years of constantly making use of Eustachian catheters.

Have surgically clean catheters and bougies.

Prepare the mucous membrane of nasal passages, especially the pharyngeal mouth of the Eustachian tube, with an application of a ten-per-cent. solution of cocaine.

Smear the bougie with a three-per-cent. ointment made with lanolin and nitrate of silver. This is the measure that is original with the author, and it is to this measure he attributes largely the good results. Unlike other fats lanolin clings tenaciously to the bougie; it shields the bougie and makes its passage more easy; and with the silver nitrate it is antiseptic and locally alterative in effect. He has it prepared from the aqueous solution of silver nitrate, so that it virtually becomes a stiff emulsion. It is only after long exposure that the surface of the ointment undergoes a chemical change, becoming black on the surface, but apparently unchanged beneath.

His seventh rule is to observe that the bougies are in perfect condition. It is possible for celluloid to become brittle and therefore highly dangerous, and for whalebone to become rough or thready, and therefore irritating.

Let the bougie rest in place twenty minutes to half an hour in the Eustachian tube.

Bougie not oftener than twice per week, and

Measure the bougie and see that it does not advance more than thirty-three millimeters.

After making sure of nasal and nasopharyngeal freedom, the above treatment seems to be a rational one, and to be directed at once to the securing of equilibrium of atmospheric pressure in the tympanum; to secure this condition should be the foundation effort. Where equilibrium is wanting, air douching, either by catheter or Politzer's method, or otherwise, as also massage of the ossicles and membranes, can be but of temporary effect.

The analogy of chronic stenosis of the tear-duct and of the male urethra, while not perfect, is at least sufficiently suggestive. It

would be a timid surgeon that in stenosis of either of those passages would rely upon an application of a vapor or a liquid. If gradual dilatation in those passages is indicated and an accepted measure, so likewise is it indicated in the Eustachian tube. That stenosis may at some time return is no argument in any case that the treatment should not be adopted, and yet, because of the delicate nature of the Eustachian tube, it should never be treated by careless or unskilled hands.

A method of treatment in tinnitus aurium, even in so small a series as this, which results in forty-one per cent. of cures and in seventy per cent. of complete relief, is so vastly superior to any method the writer knows of that he states he shall continue it with confidence, although a succeeding and longer series may not give as fair a result.

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#### HERNIA OF THE BLADDER.

HERMES (*Deutsche Zeitschrift für Chirurgie*, 45 bd., 3 u. 4 heft) calls attention to the rarity of this affection. He states that Sala in 1520 was the first to discover it. The first elaborate and careful study of the pathological conditions was contributed by Verdier in the middle of the eighteenth century.

Aue, in the thirty-ninth volume of the *Zeitschrift*, collected all the cases to the year 1890. The author has continued this collection to the present date. He gives the histories of four cases observed in the hospital. The affection was most frequently observed between the fifteenth and sixteenth years. Only one instance is reported under the fifteenth year; this occurred in the case of a five-year-old child. In the latter case the hernia developed as a sequel to an unsuccessful attempt at a radical cure of an ordinary intestinal hernia. Three cases were observed between the twentieth and thirtieth years, fifteen between the thirtieth and fortieth, eight between the fortieth and fiftieth, nine between the fiftieth and sixtieth, nine between the sixtieth and seventieth, and two after the seventieth year. In forty-seven cases the hernia was inguinal, in eleven crural. As to sex, forty-two inguinal hernias and one crural hernia occurred in males, while five inguinal and ten crural hernias occurred in females. Perineal and obturator hernias recorded in Aue's statistics, respectively eight and three times, are not represented in the latter list, nor are hernia of

the linea alba (Aue, two) nor ischiatic hernias (Aue, one).

The diagnosis of vesical hernia was made before operation in three instances. In thirteen cases it was recognized in the course of operation, and the bladder was therefore not wounded. In twenty-five cases it was wounded during operation and was recognized through this fact, the wound being closed at once. In fifteen cases the wound inflicted during the operation was not recognized, but was later known to have occurred through symptoms which developed.

When the bladder was wounded during operation, it was taken for the hernial sac in six cases; for a second hernial sac in five cases; for a greatly thickened sac in one case; for a subserous lipoma with diffuse masses of fat in four cases; for a second hernia in one case; for omentum in one case; for a cyst in one case. Of the fifty-eight cases collected the bladder was wounded in forty; by ligature sixteen times, by incision seventeen times, in the course of blunt dissection five times, by traction with forceps once. In nineteen cases the bladder was immediately sutured, once after two hours, four times after twenty-four to forty-eight hours; was sewed together with the skin opening twice; tamponaded without suture once. In five cases an ordinary fistula developed spontaneously; once hematuria indicated a wound of the bladder; once because of retention the incision had to be reopened, cure taking place by secondary intention without fistula formation. In one instance the ligature was extruded after six weeks, resulting in the formation of a fistula, but one which did not allow urine to escape.

There were eleven fatal cases. In the first the bladder was ligated, together with the hernial sac; the patient died of anuria in twenty-four hours. In the second case death occurred in nineteen days; the bladder wound was recognized at the time of operation and secured to the skin wound because of tight stricture; the patient perished because of gangrenous dysentery. In the third case a gangrenous diverticulum of the bladder was removed and the wound tamponed; death followed from chronic uremia. Demoulin ligated the bladder, but two days later loosened the ligature and sutured the wound; death followed three days later of static pneumonia. Ostermayer ligated and resected a portion of the bladder, but on the next day recognizing this fact sutured the wound; the patient died of anuria. Stim-

son's case died of shock, an extensive resection of the sigmoid flexure having been required. Hartley's case died of shock and hemorrhage. Ssalistschew, mistaking the bladder for subserous fat, wounded it; he immediately sutured this wound. Death occurred on the third day from hemorrhagic peritonitis, with retroperitoneal infiltration of blood. Prjanischnikow tore the bladder in the course of a blunt dissection, and since he could not suture it made a suprapubic fistula; death occurred in three days from peritonitis and suppuration of the prevesical space. Finkelstein tied the bladder and the omentum; death occurred in twenty-four hours with edema of the lungs and urine in the abdominal cavity.

It has already been mentioned that in only three instances was the diagnosis of vesical hernia made before operation. None the less the diagnosis of this affection is comparatively easy. There is usually some disturbance in the complete evacuation of the bladder. This is difficult; the patient is often required to take a certain position before he can empty his viscus, or it may be necessary for him to press with his hand in the region of the hernia. There is often pain, and the urine can be evacuated only drop by drop; sometimes there is retention. Sometimes the bladder can be emptied only after two efforts: the first, evacuating the urine in a portion of the bladder which is normally placed; the last, from the portion of the viscus which forms a part of the hernia. The bulk of the hernia varies in accordance with the fulness of the bladder. Frequently the surgeon will feel in the external ring a soft, round, fluctuating tumor, usually irreducible, which remains when the rest of the hernia has completely disappeared. The passage of a catheter or fluid into the bladder will prove the connection between this tumor and the vesical reservoir. The sound, if it is solid, is often turned toward the side on which the hernia exists. Often there are only one or two characteristic symptoms, or they may all be absent. Statistical study shows that during the operation hernia of the bladder will lie in the inner lower portion of the hernia, covered with a layer of fat. The color is either that of fat or lemon-yellow, sometimes gray-yellow. This layer of fat is intimately united with the hernial sac so that the separation of the two by blunt dissection is often impossible. In the course of such a dissection in some cases the retiform arrangement of the muscles of the bladder has been

demonstrated. Usually the introduction of a catheter into the bladder at once demonstrates that this mass, forming a part of the hernia, is a portion of the vesical wall. Moreover, on following the base of this tumor with the finger the latter is always directed behind the pubis. The prevesical layer of fat seems to be always well developed in cases of vesical hernia, forming almost a true lipoma. Furthermore it is held that this is really the cause of the bladder hernia. In thirty-eight of the fifty-eight cases this lipomatous formation on the inner border of the inguinal canal was observed.

When every diagnostic sign fails during the course of an operation, the surgeon should open the abdomen above, and thus he is enabled at once to assure himself whether or not the bladder forms part of the hernia.

The three forms of bladder hernia are the intraperitoneal, extraperitoneal, and the partly intra- and partly extraperitoneal. The first form is extremely rare; the last form is extremely frequent, and especially in later years because of the popularity of the radical cure of hernia. Thus in this operation the sac is tied as high up as possible, the peritoneum being well pulled out when the ligature is applied. It is readily seen how this may draw upon the bladder, pulling this viscus toward the seat of ligation, and thus paving the way for subsequent hernia. In Hermes' collection there was only one instance of pure intraperitoneal vesical hernia. This formed a projecting tumor on the inner side of the hernial orifice, which on examination was found to be continuous with the bladder.

The vesical hernia can only be treated by radical operation. A truss can be of little service since these hernias are always irreducible, hence pressure is liable to irritate, to make adhesions more dense, and favor cystitis. It has usually been found that the application of a truss distinctly aggravates the patient's suffering. If the bladder is recognized in the hernial contents it should be mobilized and replaced, radical operation for hernia then being completed in the ordinary manner. The result is completely satisfactory. The freeing of the bladder is best accomplished by blunt dissection, but it will often happen that the knife and scissors must also be employed. The prevesical lipoma or the diffuse layer of fat overlying the bladder should be removed. This method is much better than that recommended by

Monod—*i.e.*, resection of the prolapsed portion of the bladder. If the prolapsed portion shows signs of gangrene it should be resected. If the resection has been carried through sound tissues and there is not a very aggravated cystitis, the bladder should be closed by sutures, the wounds of the soft parts then being treated by tamponade. After the bladder is firmly closed the operation for radical cure of hernia can be completed. In unfavorable cases it is probably wise not to attempt suture but to provide for drainage.

When the bladder is accidentally wounded in the course of operation it should receive immediate attention. The opening should be closed by suture, thin and diseased parts being cut away so that the threads may be carried through sound tissue. It is noteworthy that satisfactory results have followed every method of suture, provided the threads have been passed through comparatively sound tissue. The idea would undoubtedly be to replace the bladder after suture and complete the radical operation for hernia and close the wound without drainage. In three instances has this procedure been followed, and with entire success. Tamponade, reserving the cure of hernia for subsequent operation, seems safer, however. If the wound of the bladder is recognized only after completion of the operation—*i.e.*, in the hours or in the day following—the wound should be opened and secondary suture applied. *Fistulæ* which result from drainage usually close spontaneously.

To this admirable paper Hermes appends histories of fifty-eight cases.

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#### KOCH'S NEW TUBERCULIN.

At a meeting of the Medical Section of the "Niederrheinische Gesellschaft fuer Natur- und Heilkunde," held July 12, Prof. Dr. Doutrelepon reported his experience in the employment of Koch's new tuberculin. Experiments thus far made testify to the favorable action of Tuberculin R. upon lupus. In all cases under observation progressive improvement was visible as a result of the injections; final judgment cannot yet, however, be rendered. Emphasis should be laid upon the fact that in every case in which resort is made to higher doses the quantity should not be rapidly increased, in order to avoid provoking marked fever, which harasses the patient.



From the medical clinic of the University of Greifswald Dr. Bruno Leich states: "Experiments thus far made afford no secure ground for assuming that the T. R. is capable of specifically and favorably influencing the tuberculous process."

From the medical department of the Allgemeines Krankenhaus in Hamburg-Eppendorf, Dr. de la Carp reports a clinical lecture by Dr. Rumpf. The latter concludes that the preparation T. R., in view of its reaction, or rather non-reaction, is not a constant and reliable preparation, inasmuch as minimum doses often produce fever, while larger doses may sometimes be borne by the same patient without any disturbance. It is very doubtful whether immunity from tuberculosis is produced by the maximum dose recommended by Koch. Only at the very outset in the treatment of incipient and restricted tuberculous processes of the lung can a careful test be made with T. R.; but a uniformly active preparation should be furnished by the factory.

From the otological department of the Charité Hospital in Berlin Dr. Richard Mueller comes to the conclusion that the influence of the new tuberculin upon the ear is not a favorable one.

In laryngeal tuberculosis Dr. J. Herzfeld has used T. R. considerably. It would be idle to talk of favorable results following the treatment of laryngeal tuberculosis in the cases coming under his observation. Local treatment would certainly have yielded better results, and it cannot be dispensed with even when the injection cure is applied.

From the Sanatorium at Schomberg Dr. Baudach reports twelve cases. He believes that his experiments were on the whole of decided benefit, and that the treatment undoubtedly accelerated in several cases the progress of the improvement previously established; a general hygienic and dietetic treatment and the open air cure supplemented the tuberculin.

Dr. Roszmann, of Brunswick, observed a violent reaction to an injection of T. R. in a female patient; fever lasted for twenty-four hours; pulse 120 to 180; digestion disturbed; general prostration persisted for several days, and headache.

In the Paris Biological Society Professor Maragliano reports his experiments. He injected the T. R. into three tuberculous patients, and one non-tuberculous patient. Fever or exacerbation of fever ensued in all; the rise in temperature persisted for two to

four days. In tuberculous subjects the injection seemed to provoke physical disturbance in parts of the lung where none existed before. In healthy guinea-pigs as well as in tuberculous pigs the temperature was increased by the injection. Using equal doses of the old and new tuberculin, the healthy and diseased animals both showed the same reaction. Microscopical examination of the turbid preparation showed bacteria and yeast germs. It would accordingly seem that there is no difference between the old and new preparations, save that the new preparation seemed to be worse than its predecessor.

Dr. Bouchard terms the new tuberculin "an impure bacteria-infected product, entirely unsuited to scientific investigations."

At Paris the house has requested permission to undertake the sale of Koch's tuberculin. In passing upon this petition the Minister of the Interior applied to the Paris Academy of Medicine. Dr. Nocard, who stands at the head of the Serum Commission, instituted an investigation of the product and reports as follows:

"The preparation in question is one manufactured abroad. Its production is of such a nature that an examination on the spot of the details of manufacture is impossible. It is moreover not possible at the present time to obtain specimens for the purpose of undertaking researches of the specific properties ascribed to the preparation by its discoverer. Investigation on the spot, however, and subsequent examination are demanded of similar French institutions. The accompanying specimen, one cubic centimeter, is altogether too small to permit experimental or clinical tests; moreover the statements made by Koch, and in accordance with which the preparation is manufactured, are too meagre in detail to convince the reader of the harmlessness and activity of the new tuberculin. The Academy would like to postpone its pronouncement until clinical experience or at least experimental tests corroborate the statements of the author. Such tests might last for several months. But the scientific importance of Koch and the natural impatience of the sufferers constitute peculiar factors which render impossible a longer delay. Therefore the Serum Commission would make an exception, and for this purpose it asks the permission of the Academy to express a preliminary report which is to receive later on a definitive sanction. The quantity of material necessary for these investigations should be placed by the manufacturers or importers at the dis-

posal of the Serum Commission. It must further be demanded that the tuberculin introduced into France shall be perfectly aseptic. This demand seems to be necessary, for *all samples of the new product which have thus far been investigated were turbid, and the microscopic examination showed bacteria to be present in great numbers.* These bacteria did not seem to be of pathogenic nature, but the possible intrusion of pathogenic germs is not excluded. Moreover, the harmless microbes may paralyze the active substance of the preparation. Accordingly, the new tuberculin should be granted free sale by the French authorities when experimental and clinical tests have established its harmlessness and efficacy. Until that time the introduction of the preparation into France should be granted temporarily, and its sale be permitted under the condition that it be perfectly aseptic."

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## Reviews.

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CUTANEOUS MEDICINE. A Systematic Treatise upon Diseases of the Skin. By Louis A. Duhring, M.D. Illustrated.

Philadelphia: The J. B. Lippincott Company, 1898.

This, the second, part of Dr. Duhring's new work appears so long after Part I, with which its pages are continuous, that some of our readers doubtless forget that this well known author is engaged in the rewriting of his book on Skin Diseases. The present portion, which is published as a separate volume, although its first page is 223, begins with the classification of skin diseases, describes the various classifications which have been designed by different dermatologists and that which Dr. Duhring himself has instituted. In regard to special diseases, we find that in class one he discusses the anemias, then the hyperemias, including the various forms of erythemas; and in class three the exudations and inflammations. In each instance the text deals with the various forms of the disease, its pathology, etiology, and treatment, and very frequently full-page illustrations, often made from original observations of the author, and water-color sketches illustrate the text. When it is remembered that these illustrations are not colored and yet give clear ideas of the pathological conditions of the skin which they are designed to represent, it will be recognized that the cases from which the pictures were taken must have been most typical, the artistic work excellent, and the labor of the photo engraver of the best.

In the article upon Urticaria Pigmentosa the dermatologist has written across the back of his patient "Urticaria Pigmentosa" with some small instrument, and the wheals have appeared in the skin so that the words appear clearly in the photograph. The important subject of Eczema takes up a large amount of space, as is natural and proper, and there are other chapters upon Impetigo, Ecthyma, Pemphigus, Pompholyx, and the various forms of Herpes, an article upon Herpes Zoster closing the volume.

It goes without saying that anything written by Dr. Duhring upon the subject of Diseases of the Skin commands at once the attention of both the specialist and the general practitioner, and for this reason, and because of the very evident worth of the volume, we earnestly commend it to the readers of the GAZETTE, expressing the hope that the author will see his way clear towards bringing out the subsequent volumes, which will complete the work, more rapidly than the first and second, which we have noticed in our review columns.

THE PRINCIPLES OF BACTERIOLOGY. A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Fourth Edition, enlarged and thoroughly revised. Price, \$2.75.

Philadelphia and New York: Lea Brothers & Co.

It is not often that a book devoted to a special subject, not intimately connected with the practise of medicine, is so appreciated by the profession as to run through edition after edition in the manner in which Dr. Abbott's has done. In the preface to this edition the author acknowledges, with thanks, suggestions which have been sent to him by readers who have been competent to make them, and he has embodied the more important of the newer ideas bearing directly upon the subjects under treatment. Illustrations of the bacillus of bubonic plague, influenza, of the micrococcus of gonorrhea, and a number of others relating to descriptive passages in the text, have been added.

Those who are familiar with Dr. Abbott's book know full well that one of its most attractive characteristics is that it enables the student, or medical practitioner, to pass from theme to theme or experiment to experiment in sequence, and that the directions are so clearly given that any one with a moderate amount of laboratory training can, with a little care as to detail, make his experiments successfully. To the practitioner who is unable to carry out bacteriological studies for himself the twenty-sixth chapter upon

infection and immunity will perhaps be the most interesting in the volume, for in this we have a brief and able summary of these very important subjects which are pressing so closely upon the attention of progressive medical men.

The volume closes with a description of the methods employed in the bacteriological examination of water and the methods of testing disinfectants. In an appendix we find a description of the microscope and the necessary accessories which are required by any one who desires to use the volume as a handbook in the laboratory. We doubt not that Dr. Abbott's fourth edition will prove even more popular than its predecessors, and to those who require a small and condensed yet nevertheless complete work upon Bacteriology, we most cordially recommend it.

THE TWENTIETH CENTURY PRACTICE OF MEDICINE.  
Volume XII: Mental Diseases, Childhood and Old Age.

New York: William Wood & Company, 1897.

Although this volume deals with subjects that are not of particular interest to the general practitioner, it is nevertheless one of the best which has appeared in the series, not only because its contributors are men well known as specialists in the subjects of which they write, but also because their literary productions in almost every instance not only maintain but increase our respect for them as authorities.

The first article of this volume upon Insanity is by Dr. G. Fielding Blandford, of London. After devoting a very few pages to the Cerebral Anatomy, he passes on to the pathology and etiology of insanity and its predisposing causes, and in this chapter brings forward many interesting points in regard to this important subject, advancing the idea with strong endorsement that the vices of Western nations combined with the development of civilization very gravely increases the frequency of mental disorders. As an illustration of this he quotes some statistics by Dr. Bucke, who in 1880 found that the proportion of insane to healthy persons amongst the white population was one in 500, while the proportion among negroes was one in 1100. Under the head of Exciting Causes of Insanity he discusses insanity from overstrain, and from such physical causes as epilepsy and alcoholism, and the insanities which result from the various poisons such as syphilis, rheumatism, gout. Many other so-called exciting causes of insanity are also discussed, a consideration of the morbid

anatomy and the symptoms of insanity follows, and then he considers the various forms of insanity as recognized by neurologists. Altogether this very able article of Dr. Blandford extends over 253 pages and has a considerable bibliography appended to it. The article upon Idiocy by Paul Sollier, of Paris, amounts to 114 pages and is quite exhaustive; while that upon Criminal Anthropology by Cesare Lombroso, of Turin, is of about fifty pages. This author has written so largely upon this subject that one turns to his article with considerable interest, although, of course, it cannot be considered a distinctly medical one. Lombroso differs from Crichton and Spitzka, who confound born criminals with paranoiacs, who among other differences frequently exhibit exaggerated altruism, and rarely the degenerative stigmata of criminals. An interesting conclusion to his chapter is that devoted to the therapeutics of crime.

The article on Old Age, by Boy-Tiessier, of Marseilles, is 106 pages in length and deals with the general subjects of the anatomical and pathological changes of senility, the diathetic causes of premature old age, natural death, and the susceptibility to senile changes of various organs. The last part of the volume, extending from page 534 to 831, is filled with a very interesting article by Comby, of Paris, who discusses the diseases of children in what amounts to a small textbook upon this subject. Naturally much of the information given here is limited in its scope, but nevertheless it forms not the least valuable portion of Volume XII. We are glad to notice that Professor Comby has included in his article full directions in regard to the treatment of the diseases of which he writes.

A TEXT-BOOK OF NERVOUS DISEASES. By Charles L. Dana, A.M., M.D., New York. Fourth Revised Edition.

New York: William Wood & Company, 1897.

Medical books, like works in the realm of general literature, can be and are divided into three great classes: The first class are those which from their first appearance from the press are failures; the second class is composed of that somewhat smaller division, the books of limited popularity and value; while the third class is that represented by the books which spring at once into well deserved usefulness and popularity. It is to the latter class that Dr. Dana's volume belongs. The valued work of the author in general neurological literature, combined with the faithful pictures of nervous disease

which he has drawn for his book, have produced a manual which, good at first, has steadily improved instead of decreasing in value by careless revision. In the present edition the part on peripheral neuroses is entirely rearranged; new chapters have been added on encephalitis, multiple sclerosis, meningitis, and traumatic neuroses. The anatomical chapters have all been revised and rewritten, and the anatomy and pathology of the work have been brought into relation with modern views as to the neuron architecture of the nervous system. The therapeutical part has been extended by additions to the appendix, giving technical details of the various accepted therapeutic measures of modern neurology.

**THE MEDICAL NEWS VISITING LIST FOR 1898.**

Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year); and Perpetual (undated, for 60 patients weekly per year). Seal grain leather. Price, \$1.25; Thumb-letter Index, 25 cents extra.

Philadelphia and New York: Lea Brothers & Co., 1898.

This Visiting List is too well known to our readers to require much description. It will be remembered that the early pages of it contain condensed information in regard to the date of confinement, conversion of thermometric scales, weights and measures, examination of the urine, and a table of the date of eruptive fevers, a description of the common poisons and their antidotes, and a table of doses, with a therapeutic reminder following it. Finally, and perhaps most valuable to the physician in an emergency, is a four-page summary describing the ligation of arteries and accompanied by a full-page figure showing where the incisions are to be made for the performance of these ligations. It can be cordially recommended as a ready aid to the physician in keeping a record of his visits and of his general and special practise.

**VADE MECUM OF OPHTHALMOLOGICAL THERAPEUTICS.**

By Dr. Landolt and Dr. Gygas.

Philadelphia: J. B. Lippincott Company, 1898.

The "busy practitioner" and the "student preparing for examination"—that convenient duo at whose feet so many literary libations have been poured—are the beneficiaries of the present somewhat diminutive compilation which has been prepared, so the rather labored "Introductory" informs us, to give them "a constant companion and a true friend." The book is composed of an alphabetical list of diseases commonly encountered

in ophthalmic practise and of the remedies which experience has taught are suited to their amelioration. The reader is impressed with the fact that the writers believe in the efficacy of drugs, and this faith is as refreshing as the "pillow of hops" will be, we trust, which is advised for the relief of insomnia's victims. A goodly number of very useful formulas have been gathered between the covers of this small book, and the reputation of the authors is a sufficient guarantee that the therapeutic recommendations are sound.

**A MANUAL OF PATHOLOGY, INCLUDING BACTERIOLOGY, THE TECHNIQUE OF POST-MORTEMS, AND THE METHODS OF PATHOLOGICAL RESEARCH.** By W. M. L. Coplin, M.D. Freely illustrated.

Philadelphia: P. Blakiston, Son & Company, 1897.

In the preface to this volume, which extends over about 650 pages, including the index, we are told by the author that the work is an amplification of the lectures in Pathology, so-called, which were published by Blakiston during the winter of 1894-95. We are also informed that whereas this first edition contained but 250 pages and fifty-one illustrations, the present volume contains 268 illustrations and the number of pages which we have already mentioned. It will therefore be seen that in amplifying his lectures Dr. Coplin has produced a fairly complete manual of the subject of which he treats. Indeed, from the scope of the volume it may be considered a fairly complete work upon pathology, although the author tells us that he has designed it not as a treatise or book of reference, but chiefly as a manual for use in the laboratory, post-mortem room, and in clinical diagnosis by the microscope. The first part deals with technique, and in this part we find chapters upon post-mortem examinations, histological methods, microscopic examination of the urine, sputum examination, and blood examination.

Part II deals with general pathology, and after giving the various definitions which are commonly employed in the discussion of pathological processes he proceeds with chapters describing infiltration and degeneration, neurosis, circulatory disturbances, inflammation and its results, tumors, bacteriology, animal parasites, temperature changes, and intoxications and infections. In the third part devoted to special pathology we have the consideration of the diseases which affect the blood, the serous and mucous membranes, the circulatory and respiratory systems, the glands, the digestive apparatus, and the urinary organs.

The book is printed upon good paper with clear type and heavily leaded, which adds much to its value as a work of reference and study. Careful examination of its pages shows that Dr. Coplin has brought to bear his large experience in the teaching of students, for it is concise, and the facts are stated in language which is not involved. To the students who have the pleasure of listening to Dr. Coplin's lectures the book will undoubtedly prove of very great value, and we firmly believe that the students of other schools will come to rely upon it as one of the best summaries of pathological facts which they can study. Unlike many books upon special subjects the pages of this one are beautified by the insertion of a great many illustrations, many of which are original and are drawn from preparations made from pathological material by the author.

**A MANUAL OF CLINICAL DIAGNOSIS BY MICROSCOPICAL AND CHEMICAL METHODS.** For Students and Practitioners. By Charles E. Simon, M.D. Second Edition, enlarged and revised. Philadelphia and New York: Lea Brothers & Co., 1897.

When the first edition of this book appeared, a little over a year ago, we perceived at once that it was destined to prove a success, because it placed before the reader the practical facts which are needed in practise and avoided some of the intricacies of chemical analysis and microscopical technique which, while necessary in works of other forms, would be cumbersome and useless to the general physician. The training of the author in these fields of clinical medicine was admirable, and he has put it to good use in the preparation of both editions. We can warmly recommend the volume to those who are desirous of having at hand a careful, accurate and complete summary of the means employed in clinical medicine, by the aid of the microscope and other apparatus and reagents, in arriving at a correct and scientific diagnosis of a malady.

**TRAUMATIC INJURIES OF THE BRAIN AND ITS MEMBRANES.** With a Special Study of Pistol-shot Wounds of the Head in Their Medico-legal and Surgical Relations. By Charles Phelps, M.D. With forty-nine illustrations. New York: D. Appleton & Co., 1897.

This work the author states has been based on 500 consecutive cases of recent occurrence. These cases are sufficiently varied in their character and sufficiently complete in histologic and microscopic detail to afford a comprehensive history of intracranial traumatism. The section devoted to

cerebral abscess has been supplemented by abstracts from Macewen's History of the Pyogenic Inflammations of the Brain and Spinal Cord. At the end of the book there is a condensed history of 300 intracranial traumatisms selected from a series of 500 original cases. The lesions caused by pistol-shot wounds of the head have been considered apart. In this section of the work is embodied the results of cadaveric experiments, having for their end the settlement of questions likely to rise in medico-legal testimony. The classification is not different from that commonly found in text-books. The discussion of the various theories of contrecoup is extremely rational.

The first chapter of the book is devoted to pathology, then follow symptomatology and diagnosis, a particularly valuable and practical part of the work. Under treatment the first step after having combated shock is shaving the head, both from a diagnostic and therapeutic standpoint. The general outlines of treatment are laid down in a previous portion of the work, but Phelps states that it is in cases of intracranial lesion without implication of the cranial wall that new problems of treatment arise. This work is one of very great value both to the practitioner and the surgeon, founded as it is upon an extensive experience. Its teachings are neither radical nor dogmatic. The author takes a position of advanced conservatism and discusses this difficult subject with a clear common sense which is refreshing in these days of deductions from the collated statistics of the work of others.

**THE DISEASES OF WOMEN.** A Handbook for Students and Practitioners. By J. Bland Sutton, F.R.C.S. Eng. and Arthur E. Gilles, M.D., B.Sc. Lond., F.R.C.S. Edin. Philadelphia: W. B. Saunders. London: Rebman Publishing Co. 1897.

The authors state that in writing this book they have earnestly desired to place the science and art of gynecology in a way that may be useful to students for examination purposes and which will enable them to practise this department of surgery successfully. When there are so many excellent works on this subject, such as those of Penrose and Baldy, already in the market, the reviewer is at a loss to determine the exact reason for issuing still another. The only advantage that this one possesses is its comparatively small size. It has an excellent index and is well illustrated, as are all Saunders' books, and has been arranged somewhat in the form

of an epitome by judicious use of large type headings. The authors are certainly deserving of credit for the skill with which they have been able to select essentials and to describe the most approved and accepted methods. There can be no doubt that both the student and practitioner who buys this book will find a safe guide.

THE ROLLER BANDAGE: WITH A CHAPTER ON SURGICAL DRESSING. By William Barton Hopkins, M.D. With Illustrations. Fourth Edition. J. B. Lippincott Company, 1897.

This admirable compend, of a size to be readily carried in the coat pocket, is so favorably known that further words of praise are unnecessary. The illustrations are excellent and sufficient, and the work is comprehensive, though the important cross-of-the-perineum should have been inserted. There is a final chapter on Surgical Dressings, and there are some especially valuable practical remarks on the subject of the plaster-of-Paris bandage and its proper application. In this part of the work is an excellent prescription for benzoated collodion and a very ingenious plaster dressing called the splint-spiral.

A PRACTICAL TREATISE ON SEXUAL DISORDERS OF THE MALE AND FEMALE. By Robert W. Taylor, A.M., M.D. With 73 illustrations and eight plates in color and monotone. New York and Philadelphia: Lea Brothers & Co., 1897.

The author states that in this work he has endeavored to describe the anatomy and physiology of the sexual apparatus in a scientific manner, and in so doing to incorporate the results of an extended personal investigation. He has given to urethral inflammations as the underlying causes of sexual impairment their due importance, and in a chapter dealing with chronic affections of the prostate has incorporated much that is new which has been developed by his investigations. He has fully elaborated the conditions of the seminal vesicles and their relation when diseased to sexual disorders, and in the matter of therapeutics has exercised care and moderation in making prominent practical and efficient methods of treatment indicated by pathological causative factors. Sterility in women is considered in a general manner, with the idea of conveying to the mind of the reader the conditions which tend to render a woman infertile, and a description of the various vulvar and vaginal lesions, the result of many years of personal study, is quite fully given in the hope of placing it on a clear and scientific foundation.

The foregoing remarks are taken almost verbatim from the preface of this admirable work, since they describe clearly and concisely the objects aimed at and the scope of the book. It may be said without fear of contention that the outline thus presented is more than realized in the pages which follow, and that this book stands in its own class without a peer. The illustrations are numerous and admirable and, with the exception of seven, are all original. The text is characterized by the force and clearness for which we look in all that comes from the pen of this acknowledged leader.

NOTE ON THE WOUNDED IN NAVAL BATTLES BETWEEN JAPAN AND CHINA DURING 1894-5. With Some Considerations on Sanitary Conditions During the War. Read before the Twelfth International Medical Congress, held at Moscow in 1897, by S. Suzuki, M.R.C.S. Eng., L.R.C.P. Lond., Fleet-Surgeon, Imperial Japanese Navy.

This brochure opens with a brief but comprehensive description of the naval battles of the war and incidentally points out the very slight damage done by the Chinese fire. In the great naval battle of Yalu Japanese ships received more than two hundred shells; the number of persons killed or injured amounted to 298. Then follow the tables giving details of the wounded. The crew of the *Matsushima* suffered most severely, losing nearly twenty-nine per cent. In this vessel it is calculated that nine men were killed or injured for every shell which hit its mark. When the shells burst the damage was always greatest, a single missile having killed thirty persons and injured seventy, half of them owing to the explosion of the gunpowder itself; this was a 30.5-centimeter shell. A missile of the same nature killed and wounded on the *Heiji* forty-one persons; while on board another vessel ten persons were killed or injured by the bursting of a 50-millimeter shell. Little damage was done when the shell perforated without bursting. Fragments of ship planks, etc., caused heavy damage: thus the fragments of the funnel of the *Fuso* struck by a shell killed or injured ten seamen.

Excepting very extensive injuries, such as burns involving the greater part of the surface or laceration of the major part of the body, the number of head wounds was greatest—i.e., over twenty-one per cent. of the total number. Comparing the number of wounds received in the land fight with those of the sea fight they were almost identical. The only marked difference between them is

that in the former case the greatest number of wounds received were those of both extremities, the head wounds coming next, while in the latter cases the head wounds were most numerous, those of both extremities coming next.

Similar statistics are given of the killed or injured during the attack upon Wei Hai Wei. Attention is called to the careful consideration given sanitary regulations in the Navy resulting in the practical eradication of kakai. The number of deaths from disease during the course of the war was 177. The number killed was 150; twenty-four men died of typhoid, 18.2 per cent. of the total number of cases.

This extremely interesting report proves conclusively how thoroughly modernized has become the practise of sanitary science in the Japanese Navy.

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## Correspondence.

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### LONDON LETTER.

By RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P.  
LOND.

Two important meetings dealing with matters of hospital reform have been held in the course of the past week. Not the less important was that of the Council of the Hospital Sunday Fund. Having regard to the purely commercial character of the agitation as fostered within the profession, it has long been evident to us that if reform is to come in an acceptable form to all parties, it must be effected by the action of those who hold the purse-strings. At present the Hospital Sunday Fund is the most important paymaster of the hospitals, and to this will shortly be added the Prince of Wales Hospital Fund. If the Committee of Distribution of both these funds can be brought to concerted action, their authority would be so great that none but the richest hospitals could afford to ignore it. On these grounds we welcome the recommendation of the Distribution Committee of the Hospital Sunday Fund that the governors of hospitals shall be advised to appoint inquiry officers or almoners to investigate the fitness of applicants for out-patient relief. This plan has been already adopted at one or more of the large hospitals, and has been found to work admirably, notably at the Royal Free Hospital, with the result that the abuse of charity is

almost a vanishing quantity. Still it is purely suicidal for a single hospital to take isolated action, as the rejected applicants are welcomed at other hospitals, often within a stone's throw. However, the most recent resolution of the Council of the Hospital Sunday Fund will do much to safeguard the interests of such hospitals as make a serious effort to grapple with the whole question. This is to the effect that wherever a hospital having an out-patient department has appointed a special and efficient officer for detecting any abuse in that department, it shall be regarded by the Distribution Committee as an important factor in determining the merits. It seems clear to us that such a method of inquiry should be generally adopted, and once the applicant has passed this official scrutiny, the medical officers of the hospital are absolved of any other duty than therapeutic. The only alternative to a recognized inquiry officer is that the physicians and surgeons of the out-patient departments should constitute themselves relieving officers, and this is intolerable. In London, with a population of over four millions, nearly one-third of this number are in receipt of free medical relief. So far the question seems fairly easy of solution, but the general practitioner has still to be reckoned with. A grotesque proposition was made at the meeting of the Hospital Reform Association by one of their number, that patients should only be admitted to hospitals on the recommendation of medical men; in other words, the hospitals are asked to depend for their clientele on the willingness of the general practitioner to sign away his income. We fear that such a Utopia has yet but a visionary existence, even in the world of general practise. Again, it is urged that trivial cases should not be admitted to the out-patient departments; but we submit that the patient is the best judge of the triviality of his own disorder, and if he be a fit subject for hospital relief he should be allowed ready admission.

The extreme bluntness of Sir Henry Burdett will hardly commend itself to the general practitioner, nor is it true of the bulk of them; but the general practitioner along with the hospital physician has to suffer for the sins of his shady *confrères*. Sir Henry Burdett concludes that the great growth of the out-patient departments shows that in some way or another this has been found in the experience of the multitude the best means of treatment at their disposal. This

conclusion, even if substantially correct, takes no cognizance of the fact that in the one case the treatment is gratuitous, in the other on payment. We do, however, agree with him that in some cases the hospital may be a haven of refuge for the sufferers from the inefficient treatment of the general practitioners, but this is the exception and not, as he assumes, the rule. Much of the outcry is due to the fact that the number of medical men is far in excess of the needs of the community. The general public have begun to awaken to this fact, as may be seen from the all-round drop in the number of entries at the London medical schools for this October session. This cannot be accounted for by the growth of provincial medical schools, but represents the balancing process always occurring in the laws of demand and supply. With some of the smaller hospitals it is becoming a serious question whether they will be able financially to keep their heads above water with the great decrease in the amount of students' fees. Possibly a rearrangement of their topographical distribution might help to solve the question, but removal of a hospital *en masse* is not a matter to be undertaken at a period of financial depression.

Several of the medical journals have recently contained articles and notes on the treatment and causation of incontinence of urine in children. The experience of a large out-patient department at a children's hospital has led one to look with suspicion on the various remedies that from time to time are vaunted as specifics. In the presence of enuresis the budding practitioner seems to think reflexly of belladonna. In our experience it has certainly been of great value in some cases, but we have never been able to define the class of cases in which it is likely to be useful. We strongly agree with Dr. Coult's practise of giving the drug in one large dose at night, and not in smaller doses throughout the day. Another drug from which we have often got good results and sometimes simultaneously is *rhus aromatica*, a drug not much in favor on this side of the Atlantic; not infrequently we have used it in combination with belladonna. Dr. Coult speaks well of the tincture of *lycopodium*, which he gives in doses of twenty drops three times a day to a small child, increasing the amount gradually until a drachm is given. Harry Fenwick prefers a tincture prepared by triturating *lycopodium* with sugar of milk, after which it is readily soluble in alcohol. Bromide has always seemed to us a

two-edged sword, and though often very useful in cases where incontinence is due to nervous hyperexcitability, it is sure to increase the trouble in those very frequent cases in which the lack of control of the vesical sphincter is associated with heavy sleep; then any agent should be avoided that deepens the inertia of the higher centers of nervous control. We have found great value from strychnine in cases of diurnal incontinence, and in some cases of nocturnal type where the condition has been associated with obvious debility; and the latter condition is also a clear indication for the use of iron. A great many cases of nocturnal enuresis have an associated history of rheumatism, but we cannot say that we have observed any good result from the use of salicylates; nor have we been able to satisfy ourselves that this association is marked clinically by an increased acidity of the urine. There is no doubt, however, that enuresis in a number of children is due to a highly concentrated urine irritating the bladder, and that the condition should be met not by diminishing but rather by increasing the fluid intake. In some cases the incontinence has been clearly associated with a definite source of irritation, such as a loaded rectum, threadworms, or a tight or adherent prepuce; and these cases often but not always may be subdued by the removal of the cause. However, whatever remedy we employ in medicine, it is of little use unless backed by precautions as to diet, position in bed, and regulation of micturition. We have succeeded in curing several cases by forbidding the pernicious habit of giving tea to small children to drink at their last meal. In conclusion, we would like to put it on record that not a few cases have come under our notice in which the disorder has followed circumcision—we suppose from exposure of the sensitive glans penis.

Dr. Clifford Beale, in a paper read before the Harveian Society, has reopened the vexed question of the usefulness of creosote in consumption. He had given pure beechwood creosote in cod-liver oil, beginning with 3-5 minims and increasing the dose by the same amount every other day until a maximum dose of 180 minims a day was reached. He found that there was no objection to the taste of the drug in this combination, and that when the larger doses were reached the effect on the temperature and general symptoms was remarkable. Many of his patients passed blackened or greenish urine, but he had never seen any ill effects from the excre-



tion of creosote by the kidney. Our own experience of creosote in very much smaller doses is certainly widely divergent from that of Dr. Beale. In the first place the weight of evidence is strongly opposed to the effectiveness of creosote in phthisis being due to its germicidal properties, and we conclude that it is with this end that such large doses were employed. The selection of the beechwood creosote is nowadays a universal precaution in administering the drug, as the coal-tar preparations are little else than crude carbolic acid. We have also found a very strong dislike to the taste of creosote administered in cod-liver oil, and many patients who will take the oil readily will refuse it when tainted with creosote. It has always seemed to us that creosote is a most valuable expectorant, and in this way exercises a sedative influence on the cough. Inhalations seem to conduce best to this end, but it is a matter of small importance how the drug is given, as it is freely eliminated by the respiratory mucous membrane. Given by the mouth in doses of more than two or three minims at a time it has seemed frequently to irritate the stomach, and has not in our hands been so beneficial to the gastric disorder of phthisis as is the glycerin solution of carbolic acid. It is hardly conceivable that doses of 180 minims can exert a less irritant effect on the stomach than doses of a few minims, and in pulmonary tuberculosis it is recognized on all hands that the stomach commands the situation in prognosis.

A month or two ago we called attention to a valuable clinical survey of the Posterior Simple Basic Meningitis in Infants by Dr. Carr, and now further light has been thrown on this interesting disorder by Dr. Still from the side of bacteriology. He regards the condition as a specific inflammation of the meninges due to a microbe that is prevalent both in England and America, with its period of maximum activity in the spring of the year. The microbe may be discovered either in the meninges or in the fluid of the cerebral ventricles. It is a diplococcus, smaller than Fraenkel's diplococcus, and closely resembling the gonococcus; it may be found either free, or intracellular. It is best stained with a saturated solution of aniline blue, but does not stain by Gram's method. It is readily cultivated on agar, gelatin agar, blood agar, or in broth or milk, but unlike the pneumococcus it does not coagulate milk. It will not grow at the ordinary temperature of the atmosphere. Dr. Still is disposed to regard

the microbe as identical with the diplococcus intracellularis of Weichselbaum. Experimental inoculations into animals were attended with negative results. The microbe had not been found in the blood, but as periarthritic trouble sometimes complicates these cases it is not improbable that we have then to deal with metastasis from the meninges to the joints.

The Asylums Committee of the London County Council is to be congratulated on the outcome of its appointment of a pathologist, and the equipment of a laboratory suitable for research work in connection with the Claybury Asylum. From this vantage ground Dr. Mott has already thrown some light on the symptom complex of general paresis. He has demonstrated the very frequent presence of fatty degeneration of the muscles, and this without any apparent degeneration in the corresponding nerves. He considers that we have to deal with a toxic principle in the blood due to the degeneration and disintegration of nerve cells, and that this acts as a poison to the motor end plates or to the muscles themselves. Cholin has been found in the cerebrospinal fluid in general paresis, and is known both to be a product of the disintegration of nervous tissue and also to have a paralyzing action on muscle. Mott suggests that the syphilitic poison predisposes to general paresis by lowering the resisting powers of the nerve elements, so that they degenerate more readily when any stress is thrown on them by worry, excess, and the usual excitants of general paresis.

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#### PARIS LETTER.

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BY A. R. TURNER, M.D. (PARIS).

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In my last letter I spoke of the case of Dr. Laporte, who had been imprisoned previous to trial on the charge of having caused death in a case of midwifery by the unskilful use of an instrument employed to perform craniotomy.

At the trial Dr. Pinard, professor of clinical midwifery at the Faculty of Medicine, testified in the strongest terms in favor of Dr. Laporte, declaring that he had done all that could be done, and that his conduct had been admirable. In Dr. Pinard's opinion the lesions found in the bladder were caused by the long-continued pressure of the fetal head. Notwithstanding such testimony Dr. Laporte was condemned to three months in prison,

but with the application of the Béranger law, which means that as it is a first offense the sentence is not carried out. The internes of the Paris hospitals have addressed telegrams or letters of thanks to Professor Pinard for his efforts in this case, and several subscriptions have been started among physicians in favor of Dr. Laporte. The latter has likewise signed an appeal against the decision of the court, which was not the work of a jury, but of a police magistrate.

In addition to the quarantine stations in the Red Sea there exists at Bassorah, in the Persian Gulf, a station intended to protect Europe against cholera or the plague coming from Asia by that direction. As this quarantine station, which is the only one in the region, is under the control of the Turkish authorities, *La Semaine Médicale*, of Paris, has just published an article giving an account of what was observed by a special correspondent whom they had charged with the inspection of the station, but who was not to disclose his profession of physician.

The building used contains five rooms on the ground floor, opening on an inner court of about 100 square meters in area. As no arrangements for food have been made by the health authorities, travelers are obliged to hire a cook, who necessarily comes into contact with the servants of other travelers. But one guardian of the station exists. The inhabitants in the neighborhood frequently come into the station, and worse than all, the soiled clothes of the inmates are carried to Bassorah to be washed. It is unnecessary to comment on such a condition of affairs.

Dr. Cavazzani, surgeon of the Civil Hospital of Venice, recommends the treatment of phlegmonous inflammations by means of one-per-cent. solutions of potassium oxalate, injected into the tissues around the focus of the affection. The first case was a woman who for two months had suffered from a phlegmon of the hand, forearm, and lower portion of the arm. Though the acute stage of the affection was over, the limb was still stiff, red, swollen, and painful. Ten injections of a one-per-cent. potassium oxalate solution were made along the entire length of the arm, two cubic centimeters altogether being injected. Considerable improvement was to be noted the next day, and a complete recovery was obtained in three weeks, the injections being made every three or four days. Two female patients suffering from phlegmasia alba dolens recovered—one after ten to twelve injections repeated twice, the other

after the same number of injections repeated thrice. A case of inguinal phlegmon following an operation for hernia recovered after two cubic centimeters was injected in eight different places around the inflammatory focus.

We have so long been accustomed to look upon alcohol as the cause of cirrhosis of the liver that it is not without surprise that we see Dr. Lancereaux state at the Academy of Medicine that after having long held that opinion he had come to the conclusion that only wine-drinkers suffer from cirrhosis of the liver, and that the cause is the potassium sulphate contained in the wine, due to what is called the "plâtrage" of the latter during its fabrication. It may be said that the majority of the members of the Academy of Medicine received the statement with incredulity.

In a severe case of acute dysentery in a man aged twenty-six years, an interne of the Hospital of Montpellier, M. Ardin-Delheil, obtained good results by giving thrice daily an enema of five grammes of antipyrin in 250 grammes of water. For an hour afterwards, the enema having been retained a quarter of an hour, pain was absent, and the patient had no passages of the bowels. The number of stools was much diminished by the treatment, and recovery rapidly ensued.

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#### BERLIN LETTER.

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BY JAMES J. WALSH, M.D., PH.D.

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After a number of articles on the therapeutic results of Professor Koch's new tuberculin, the German medical journals have practically agreed to let the matter rest for a while. As the editors of the *Deutsche Medicinische Wochenschrift* announced some time ago, any definite or final conclusion as to its therapeutic value is impossible as yet. A large number of observations must be made, and these must be controlled by the condition of the patient, not a month or two after the injections, but a year or more after, at least. This desideratum cannot be fulfilled under present circumstances, so that articles on results obtained, favorable or otherwise, must necessarily be lacking in that essential element in therapeutics, finality of results.

After the sad failure of the first tuberculin, with all the disappointment it involved for the profession all over the world, medical minds were in anything but a state of recep-

tivity for the new tuberculin. Here in Berlin, where the disappointment was most profound, this lack of receptivity was especially noticeable. Within a very short time reports of unsuccessful trials of the new remedy were made. The great clinicians at the Charité were almost hasty in announcing that the new tuberculin was no better than the old. It had been made public only three months when the conclusions were reached, which were given as final at the Congress at Moscow.

After all it would seem that the patient five years' work of the great master of bacteriology deserved a less trenchant procedure than this. He and his assistants have been faithfully noting results for a long time, with the lesson of former failure to make them doubly careful in their estimation of improvement noted; yet they were ready to formally give their results to the world, satisfied to try again the judgment of the profession in the matter. The note of medical opinion all over the world has been taken to a great extent from the leaders of medical thought here in Berlin, but there have been some notable exceptions to this rule. From many of the university clinics of Germany came most encouraging reports. From Greifswald, Munich, Königsberg, Doutrelepoint at Bonn, and from Petrusky at Danzig. From foreign sources there was much more said that was favorable than unfavorable. Thus from Moscow, Amsterdam, Turin, London, and even from Paris, there were reports of successes, especially with the external forms of tuberculosis—those in which results are too evident for the therapeutic tendency to self-deception to have a place.

It is so much easier to condemn in the matter of new remedies than to try out the question on its merits that the *facile consensus* of disapprobation can be easily understood; but to any one who has seen some of the results here in the Institute for Infectious Diseases the hasty condemnation cannot but seem an almost criminal anticipation that may delay the use of an important remedy.

No marvelous claims are made for it; no marvelous cures are shown. Where there is an advancing tuberculous process in the lung, where there are already beginning signs of cavity formation, where already the febrile course shows a serious constitutional reaction, there the new tuberculin is considered to have no place in the treatment. Such cases are to be seen under treatment by the new method, but always at their own urgent

request—sometimes with strikingly good results, too; but no claims are founded on their improvement. For the lighter or just beginning cases, where modern exact diagnostic methods catch the disease almost in its very incipency, these are the cases where symptoms are always observed to regress under the use of the new tuberculin. Especially is this true of the cases in which the febrile reaction after injections of the old tuberculin for diagnostic purposes shows the presence of a tuberculous process that may be hidden from all other diagnostic methods.

In such cases the liability to self-deception on the part of an interested observer is of course very great, but the obvious and unquestionable confirmation of these results is the really wonderful improvement effected in lupus and allied conditions. Some of the cases that may be seen at the Institute were of the worst type and in the most advanced stages. Every remedy imaginable had been tried in them for years. The cicatrization process has gone on steadily and persistently since the tuberculin has been used. The visitor does not see the cured cases, but some of the photographs are very convincing evidence of a powerful curative agent at work. It would seem, then, but fair to the master, to whom in other matters we bow unquestioningly, almost, not to condemn his great work untried. The question is an open one, and true medical conservatism will decide it properly in time; but let us not anticipate.

Bottini's method of treatment for enlarged prostate is at present attracting a good deal of attention here. The fact that it is discussed seriously in severe cases of prostatic hypertrophy even by the medical clinicians is a fair index, I think, of how general the interest is in it. Some of the successes reported from it are very encouraging, though of course the reports come mostly from those who are interested more or less personally in having the profession take it up as a recognized surgical procedure. Here in Berlin it has been tried recently in three cases with marked success, where all other means had failed. In two of the cases castration had been done without result; in the third case excision of the middle lobe of the prostate had failed to give relief. All three of the cases were able to urinate of their own accord the day after the operation, and their urinary condition has continued to improve since. Whether the burning of a groove through the dense connective tissue of the hypertrophied prostate is not going to give rise to dense

cicatricial tissue with an inevitable tendency to contract is not yet definitely settled. Operations have scarcely been done long enough to properly answer the question at this time. Meantime the best results reported so far are no better, not even as good as usually follow castration, while the armamentarium for it is highly specialized and costly, and requires considerable practise in its manipulation. The operation is not likely to become generally popular, but like catheterization of the male ureters, it is likely to be the exclusive privilege of the young surgeon beginning his career and looking for something striking and novel on which to report his first set of cases.

Talking of prostatic hypertrophy, there are some serious clinicians here who report good results in its treatment with extract of prostate gland. Just what the principle is on which it is used is a little hard to determine. It looks a little like *similia similibus*, but the fact remains that some insist it should always be given a trial before recourse is had to any surgical means.

Oophorin—extract of ovary—is spoken of, too, for the troubles of the menopause, and whether it be the incidental autosuggestion that is active, some very good results have been reported just in that class of highly neurotic patients whose climacteric is almost as much of a torment to their physicians as to themselves, and for whom therapeutic measures generally are absolutely without avail.

#### THE TREATMENT OF MALARIA.

To the Editor of the THERAPEUTIC GAZETTE.

DEAR SIR: The THERAPEUTIC GAZETTE is before me—the October number—the first copy I ever received, and in looking over its pages I come across something that I have been looking for some time, viz., "The Exact Treatment of Malarial Fevers." I am called in to see many persons troubled with malaria, and am anxious to learn the best method to cure my patients.

From the heading of the article referred to above I expected to find an exact treatment—an accurate or methodical treatment—one which a beginner could follow; but instead I find a complex method. I believe the writer refers to at least twenty-seven drugs, and states that all are good in their place; but quinine is rated first as almost a specific. I do not agree with the writer's treatment of malarial fevers, yet I do believe he gives us some good points as to what to do with a patient who is convalescing.

I was educated in a homeopathic college, and am willing to confess that I cannot cure malaria by the drugs that I was taught would cure that disease, and I am perfectly willing to try anything from any school in order to cure my patients.

If malaria comes from infection from some outward source—a germ—surely we ought to get at some results without trying at least twenty-seven different drugs.

The writer divides the fever into three stages—cold, hot, and sweating. In the first stage a ten-grain dose of Dover's powder is recommended; also the same dose of the same medicine is recommended in the second stage, in which the condition of the patient is directly opposite to that of the first stage.

If malaria is caused by the plasmodium malarix, and as the writer states quinine will kill the germ by saturating the blood, why mention the other drugs at all?

My criticism of the article, more than anything else, is to prove that the essay on "The Exact Treatment of Malarial Fevers" is not an exact treatment; if it was it would be an exact or methodical one, and it is far from methodical. I have studied malarial fevers over and over again; I have followed those writers who claim that quinine is a specific, and others who claim that it can be treated without the use of quinine, and I feel more convinced every day that there is not any specific for the disease. I have treated cases with both small and large doses of quinine, and had no success at all; with others I have successfully cured by the use of quinine alone. I had one case which was interesting to me and may be beneficial to others—that of a man aged twenty-eight years, a factory operative. I was called to see him about one year ago. He had an attack every day in the factory, so that he had to quit work for an hour or two daily. I took out my case and was going to give him quinine, when he told me that he had taken large amounts of quinine without any favorable result. For over one week he had taken some days twenty-four grains, other days forty-eight grains, and had got the drug effect to perfection, yet had what he termed the "shakes" just the same. I gave him calomel to keep the bowels open, and a pill containing iron 1 grain, arsenious acid  $\frac{1}{10}$  grain, three times a day. He has not had a chill since.

Another case, that I could not do anything with until I found that the boy was a cigarette fiend: by stopping the cigarettes and

giving him two grains of quinine before meals and a pill of iron and arsenic after meals for one week a cure was effected.

I am one who believes in quinine, and though in my case it has not been a specific, it is a drug I could not get along without in malarial fevers.

DR. T. E. KIRBY,  
Upton, Mass.

[The writer of this letter, if he will study the excellent monograph on Malarial Fevers by Dr. Thayer, which we reviewed in the November issue of the *GAZETTE*, will soon be convinced that the plasmodium is the cause of malarial fever in all its forms, and that quinine kills this parasite and is a specific. No one has a right to deny the value of quinine for such purposes without being sure that the condition treated is really malaria, nor is he justified in doing so before he has tried it in many cases, nor until he is sure that the drug has been absorbed. If the case cited above was a true instance of malarial fever we believe the large doses of quinine cured the patient even if the so-called "shakes" did continue for a time, perhaps as a "chill habit." The position of quinine as a specific for malarial infection when used properly is so strong from every point of view that the medical man who denies resembles the unfortunate who asserts there is no remedy for any disease. Other remedies than quinine are often useful to relieve symptoms while the quinine is curing the malady and form useful adjuvants to it. We see no reason for believing the second case cited to be one of malaria.—ED.]

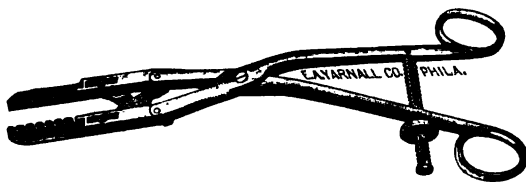
#### IMPROVED HEMORRHOIDAL SUTURE CLAMP.

To the Editor of the *THERAPEUTIC GAZETTE*.

SIR: In last February's *GAZETTE* I read an article by Llewellyn Eliot, M.D., describing the Erwin suture clamp for removal of hemorrhoids, accompanied by cut of same. I thought it was what I needed and sent for it. On using it, however, I found it objectionable in two particulars: first, the jaws of the clamp, turning at right angles to the arms, brought the handles to a perpendicular position when applied to the tumor, and between the operator and the tumor, making it necessary to have an assistant to hold them up, besides being in the way of cutting and ligating; second, the shoulders or perforated portion of the jaws are too high, and consequently left too much tissue after cutting

away all that could be enclosed above the clamp, and the perforations being so far apart left a ragged wound and occasionally more hemorrhage than is ever necessary. To overcome these objections I corresponded with the E. A. Yarnall Co., Philadelphia, and suggested making the shoulders one-eighth of an inch high, the perforations one-eighth of an inch apart, and instead of turning the jaws at right angles to secure parallel action of the blades, to use the truss-joint in front of the scissor-joint, and substitute a nut screw for the ring on the handles.

They succeeded in making an admirable instrument, a cut of which is seen herewith.



This enables the operator to remove any pile without assistance, except when chloroform is necessary. With the use of both cocaine and eucaine I have operated on external and marginal tumors without pain, hemorrhage, or assistance, and the wound looks like a whip-stitched line. Of course a general anesthetic should be used when dilatation of the sphincter is necessary, and this is always the case in internal hemorrhoids. To Dr. Erwin, of Walter's Park, Pa., is due the honor of an invention which should do away with the cautery in the removal of hemorrhoids, for as Dr. Eliot says, "it is almost bloodless, there is no sloughing, it heals rapidly, it removes the entire hemorrhoid, and it does not affect the tone or caliber of the bowel."

A. H. TIDBALL, M.D.

GARRETTVILLE, O.

#### COMPLICATIONS DURING LABOR IN A CASE OF PREGNANCY FOLLOWING HYSTEROPEXY.

To the Editor of the *THERAPEUTIC GAZETTE*.

SIR: Mrs. Ida Y., aged twenty-six, occupation housewife, had suffered from dysmenorrhea for several years. One year ago she was admitted to the Jefferson Medical College Hospital, Philadelphia, where hysteropexy, or fixation of the uterus to the abdominal wall, was done.

The retroversion cured and the patient relieved of her troublesome dysmenorrhea, the operation was naturally considered a perfect remedy, especially as the woman became

pregnant three months afterwards. She went on to the term without any serious inconvenience other than the nausea and vomiting were rather excessive. She was first taken in labor November 21, at 10 P.M., and for forty-eight hours her pains were excruciating, the contractions being very ineffective on account of the acuteness and severity of the pain. At 2 A.M., November 23, when I first saw the patient, she was wild with pain, and so restless that even an external examination was impossible.

After consulting with her physician in attendance, a few whiffs of chloroform were given, which enabled us to make a satisfactory examination. The woman had a fair pelvis, the anterior superior spines 24, crests 26, trochanters 31+, right diagonal 22+, left diagonal 22, and external conjugate 21 centimeters.

The first thing observed upon exposure of the abdomen was its peculiar shape, and the development of the uterus entirely upon the right side, the contractions being confined wholly to that side of the uterus, the left side not participating to any appreciable extent in the contractions. The back of the child lay to the right and the head below, heart sounds to the right and below the umbilicus, and the os uteri was dilated to the size of a quarter dollar. The diagnosis of left occipito-anterior position was made.

As the woman was exhausted with her prolonged labor, as the contractions were so exquisitely painful that they were ineffective, and were entirely one-sided, the uterus being adherent to the abdominal walls in the median line below the hysteropexy scar, it was decided to dilate the cervix and remove the child instrumentally.

After etherization she was placed across the bed and the cervix dilated, using first one and later two fingers of each hand. Forceps were then applied and the child delivered in the usual manner.

The child was born with the cord wrapped twice around the neck, the head being quite blue as a result. This cleared up promptly, after respiration was established.

The placenta was firmly attached to the uterus immediately below the line of adhesions between the uterus and the abdominal wall. This made it necessary to deliver the placenta manually, scraping away the adherent membranes with the fingers.

A small perineal laceration was then brought together by four sutures, and the woman cleaned and fixed in bed. Her puer-

perium was normal in every way; highest temperature  $99\frac{1}{2}^{\circ}$ . The perineum united well, and mother and child are happy and well.

This case appears to me to be especially interesting just at this time on account of the frequency with which hysteropexy is now performed. The operation is of relatively recent origin, not difficult in performance, and is at first, and frequently ultimately, brilliant in its results. This makes it very attractive, but it is certain that a great many cases of retrodeviation and prolapse can be cured by minor gynecology, or at least without invading the peritoneal cavity.

I think, therefore, that while the complications in labor following hysteropexy do not contraindicate its performance where less radical methods are not successful, we should bear in mind constantly, and give proper consideration to, these complications before doing hysteropexy.

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#### *EIGHTEEN CASES OF DIPHTHERIA—NO DEATHS.*

To the Editor of the THERAPEUTIC GAZETTE.

SIR: From the beginning I had been prejudiced against the use of antitoxin in the treatment of diphtheria. During the past four years I have treated eighty-six cases of this terrible disease. I know what it means to dread diphtheria, if any one does, having watched over five of six children who passed away in one family, regardless of anything that could be done by myself and the two other physicians whom I called in consultation. I am now satisfied in my own mind that had antitoxin been used the result would have been far different.

In the last eighteen cases I used Parke, Davis & Co.'s antidiphtheritic serum without a fatality. With one child eight months old (laryngeal diphtheria) death seemed imminent; one injection of 1000 units surely saved the infant's life, and it is now well.

Seven of these cases were indeed bad ones. Under any other treatment I have ever used I should not have been surprised had I lost four or five out of the seven.

I now use antidiphtheritic serum in conjunction with Loeffler's solution with the most confident expectation of a satisfactory result, and I cannot say enough in its favor. My patients have all recovered without a single complication save a mild erythema in two cases.

Yours truly,

FRANK BROUWER, M.D.

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